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By Charles McNeil, M.D.Edin., F.R.C.P.E., F.R.S.E.

EDWARD CLARK PROFESSOR IN CHILD LIFE AND HEALTH IN THE UNIVERSITY OF EDINBURGH

I—Neonatal Deaths

Infant mortality is expressed as the number of deaths in 1000 live births throughout the first year of life. The Registrar-General now also gives death-rates in the same way for the first month, and this is often described as the neonatal death-rate. These death-rates are our best measure of the efficiency of protection of infant life and allow a rough comparison of infant health in all countries which keep and publish these figures.

During the present century there has been a steady fall in the infant death-rates for the first year in all countries; this has been accompanied by a general fall in the birth-rate. The fall in the neonatal death-rates has not been nearly so great. The causes of death in the first month (neonatal) are quite different from those in later months. Broadly they are due to morbid conditions in the mother during pregnancy, to the risks of birth, and to diseases developing in the first week or two after birth. If our infant death-rates in the first month and in the first year are separated and compared with those of other countries, as regards our neonatal death-rate we take a fairly high position; but our death-rate for the whole year brings us down to a much lower place and makes a poor showing with Holland, Sweden, Switzerland, Australia, and New Zealand. I shall try to show that our high death-rate throughout the first year is due to serious defects in our nursing and medical control of the baby after birth. These defects are manifest already in the first month of life and continue to operate throughout the first year; and they can be put right.

The phrase "infant mortality" has a deceiving simplicity which hides one of the most complicated and inter-twisted of medical problems. It does not include the big and difficult problem of stillbirth, which is closely associated; but it deals with the great mass of infant deaths, which begins to pile up immediately after birth and goes on accumulating throughout the first year. These deaths are due to many different pathological processes often acting in combination; and there are predisposing conditions which favour the pathological factors. It is only when these pathological factors and predisposing conditions are laid bare, and their cause and nature understood, that treatment and control can become more effective.

A HOSPITAL SERIES OF NEONATAL DEATHS

As a contribution to the pathological study of infant deaths in the first month of life, I give figures from the pædiatric section of the *Clinical Report of the Royal Edinburgh Maternity Hospital* for 1938. These figures are set out graphically in fig. 1. While numbers are also given, the mass of each set of figures is accurately shown by blocks of 100 units or less. The mature births are shown above the base line, the premature births below. The standard of maturity is one of weight—5½ lb. at birth, as recommended by the International Committee at Geneva in 1937 and accepted by the British Pædiatric Association. The lower limit of viable prematurity is one of age—the twenty-eighth week of pregnancy. Stillbirths, premature and mature, are shown on the left of fig 1. This collection of hospital clinical material is not a fair sample of the general maternity population and gives a much higher infant death-rate than that of larger regional units—e.g., the city, the state. Also the material does not extend over the first month of life, the great majority of mothers and babies being discharged in the latter part of the second week. But the value of this hospital clinical material is that it is under clinical observation and under a uniform medical and nursing control, and that the causes of death are checked by necropsy. It ought therefore to throw light upon the principal causes of infant death in a maternity hospital during the first two weeks after birth.

Stillbirths.—The stillbirth-rate in this series is high—79 per 1000 viable births. Prematurity (68 cases) plays an important part in it. In the 97 mature stillbirths some abnormal condition of pregnancy and some abnormality of labour were present in 76.

Live births.—Here fig. 1 shows the main results in death, disease, and health. The health group carries a question mark; it only expresses health on discharge from hospital, but we know well that during the remainder of the first month health can readily slip back into disease and death. The neonatal death-rate for this series is 59 per 1000 live births; the neonatal death-rates for Edinburgh and Scotland in 1938 were 34 and 38 respectively. But these hospital neonatal deaths, numbering 114, were the subject of necropsy in 101 cases; therefore the cause of death can be given for the great majority, with information also about pregnancy, labour, and maturity—all predisposing conditions which are valuable data to be placed alongside the actual cause of death shown by necropsy. Prematurity takes more than half of the total deaths among live births, and the death-rate among the prematures is 38·6 per cent. The standard of prematurity in this series is the new one of weight only—5½ lb. Prematurity is the greatest single predisposing factor in neonatal deaths; it can be reduced in two ways, by better antenatal care of the mother and by more skilled nursing and dieting of the baby.

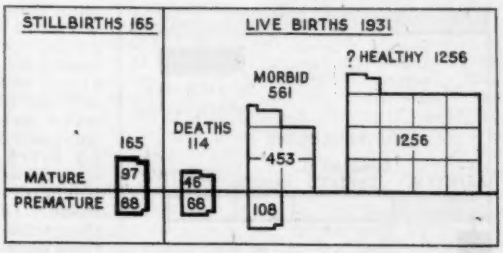

Fig. 1—Neonatal record of 2096 viable births.

CAUSES OF NEONATAL DEATHS

The causes of neonatal death in 108 cases out of the 114 are shown in fig. 2. In 101 cases the cause of death was determined by necropsy, and in 7 cases by some obvious congenital defect, such as spina bifida. These causes fall into three main groups: intracranial hæmorrhage, infections, and a miscellaneous group made up of asphyxia, congenital defects, and other conditions. The three groups are approximately equal: intracranial hæmorrhage 40; infections 43; and the miscellaneous group 39. The figure also shows by attached blocks the common incidence of double or multiple lesions in neonatal pathology—e.g., intracranial hæmorrhage associated with pneumonic

infection or with asphyxia. The remarkable feature of this series of neonatal necropsies was the large number of infections; among these pneumonia easily took first place.

Intracranial hæmorrhage.—In this group of 40 cases, 10 were associated with some serious infection, such as pneumonia or meningitis, the infective process being the probable cause of death; and 4 with asphyxia. Premature babies were shown to be more liable than mature babies to intracranial bleeding—28 to 12. Further, the site of hæmorrhage was subdural in most of the mature babies, whereas in the premature group subarachnoid and intraventricular hæmorrhage were commoner than subdural. In this series intracranial hæmorrhage is easily the largest single factor among causes of neonatal deaths; this fact is brought out in most series of neonatal necropsies.

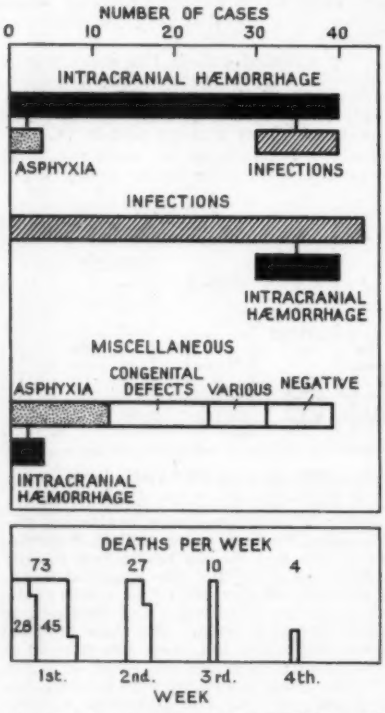

FIG. 2—Causes of neonatal deaths in 108 cases (101 necropsies, 7 congenital defects without necropsy).

Infections formed the largest of the three main groups of the aggregate. There were 43 cases of fatal infection, of which 10 were accompanied by intracranial hæmorrhage. Of these infections pneumonia was easily first, with 25 cases; meningitis and septicæmia each numbered 7 cases, and the remaining 4 cases were made up of gastroenteritis and pyelonephritis. This number of infections is much greater than in the important series of Chicago necropsies made by Bundesen et al. (1938); it is probably much greater than in modern British maternity hospitals. These figures of infection were obtained in an old hospital, where babies and mothers occupied the same crowded wards and were nursed by the same staffs—conditions that provided easy communication of infection to the babies. This series, it is to be hoped, marks the end of this heavy list of infection, for the old hospital is now transferred to the new maternity pavilion of the Royal Infirmary. But lessons can be drawn from examination of these figures, which will show that modern premises and separate nurseries in maternity hospitals are not enough. There is still required of the medical and nursing staffs a high and strict standard of antiseptic routine, if the newborn baby in hospitals and nursing-homes is to be protected from infection. Before Lister, surgical hospitals were riddled with deadly infection; so were maternity hospitals with puerperal sepsis before Semmelweis. There still remains infection of the newborn as a blot to be removed. Of course a great deal has been done; the umbilical stump no longer causes its thousands of deaths from septicæmia and tetanus; infection of the eye and resulting blindness have been brought under complete control. These are areas of danger on the surface; they are now known and they are protected; but there remain other danger areas—the mouth, the nose, any trivial lesion on the skin which can easily allow infection to enter the body. And in the first few weeks of life the natural immunity of the infant to every kind of infection is low; so at this time we meet with *Bacterium coli* meningitis and pneumonia, which are almost unheard of in later infancy or in later life. Infection on the hands or in the breath of the attendants can easily reach the baby's mouth and nasopharynx. Neonatal pneumonia has been investigated by Macgregor (1939), whose thorough histological and bacteriological study is likely to remain the classic investigation of the problem and the basis of protective nursing routine. Obstetrical pneumonia, produced by inhalation of infection during birth, is very difficult to prevent. But in her large series of cases she has shown that many of the cases of pneumonia developing in hospital after birth are due to droplet infection of the baby's nasopharynx from the air. Her findings prove beyond doubt the necessity of protecting babies in wards and nurseries by a strict nursing routine. Pneumonia, meningitis, and septicæmia seldom appear in certificates of death in the newborn that are based on clinical observation; most of these certificates, bearing labels such as prematurity or congenital debility, are worthless. It is only by necropsy that the true cause of death can be revealed in the newborn. Symptoms of intracranial hæmorrhage, pneumonia, and other fatal conditions are often either absent or of a most misleading kind; and, where necropsies are often done, the clinical diagnosis is again and again completely upset by them.

Thrush is a common mycelial infection of the newborn, both in maternity hospitals and homes and in private practice. Often it is trivial; but it is always potentially dangerous and not seldom rapidly fatal. It is easily recognised in the mouth, but when it is confined to the œsophagus, stomach, and intestine its symptoms are misleading. The following examples are typical of rapidly fatal thrush.

CASE 1.—A boy, born in the hospital, was discharged on the tenth day breast-fed and thriving; he was then ½ lb. heavier than at birth, and the mouth and tongue were clean. Vomiting began at home, but breast-feeding was continued; a week later the weight taken at a baby clinic showed a loss of 2 oz. The mother weaned the baby and fed it with a dried milk. The vomiting improved, but the baby began to refuse its feeds, and diarrhœa developed. Weight and strength rapidly declined. On his admission to hospital, aged 22 days, the weight had fallen to 6 lb., a loss of 14 oz. in six days. Rapid decline in hospital and death in five days, without evidence of thrush. Necropsy showed extensive thrush, œsophagitis and slight gastritis.

Infection with thrush probably took place in hospital but at this early stage was without symptoms or signs. Weaning cannot have helped matters; but the next case shows that thrush may soon be fatal even with the advantage of breast-feeding.

CASE 2.—A boy, born in a maternity home, began to vomit on the fourth day, but this did not interfere with nutrition, and at the end of the first week he had almost regained his birth weight. Vomiting continued throughout the second week, with failure of appetite and loss of weight. Pyloric stenosis was considered, but satisfactory evidence was not obtained. Breast-feeding had been maintained. Admitted to the Edinburgh Children's Hospital on the fourteenth day, he showed extensive thrush of mouth and tongue. Thrush soon disappeared from the mouth, but there was no general improvement, and blood was often seen in the stools. He died a week later, aged 3 weeks, and necropsy showed extensive thrush

of the œsophagus, with inflammation of stomach and small bowel.

Blood in the vomit and stools is a common and significant symptom of extensive thrush in young infants.

Thrush in the newborn as well as in older infants is probably widely prevalent in Britain. Ebbs (1938) has written a valuable paper on fatal cases; but the subject requires further thorough investigation.

Infection of the newborn is a less difficult problem to solve than intracranial hæmorrhage; the key to its solution is the trained and conscientious nurse, taught the manifold sources and channels of infection and thoroughly drilled in the practical technique of guarding the baby against them. The nursing drill in the nursery of a maternity hospital or nursing-home should be as strict as that in a surgical operating-theatre. That will seem to many an exaggerated statement, because the facts of neonatal infection are not widely known. When they are known and translated into practice, we shall save many infant lives now thrown away by the ignorance and carelessness of the nurse.

Miscellaneous group.—This is made up of 12 cases of asphyxia; 12 of different types of congenital defect; 7 cases of various other morbid conditions; and 8 cases, nearly all premature babies, in whom no definite pathological condition was found at necropsy. Of the 12 cases of asphyxia, 10 were premature (under 5½ lb.). We have already noted in this series the greater liability of premature babies to intracranial hæmorrhage; their liability to asphyxia is also pronounced. Here we are dealing with pathological asphyxia with its post-mortem signs. But there are also lesser degrees of asphyxia, both during and after birth, whose effects are seen in a train of sequelæ: untimely breathing during birth causing aspiration of septic material into the lungs and pneumonia; atelectasis; hæmorrhage into the lungs and brain. Asphyxia is important as an actual cause of death; its importance as a predisposing condition, leading to various other fatal pathological processes, is difficult to measure but is probably even greater. Asphyxia should be regarded as one of the major factors in the neonatal part of infant mortality.

REVIEW OF CHIEF CAUSES OF NEONATAL DEATHS

This study of neonatal deaths in a large maternity hospital deals largely with the first two weeks after birth. Before passing on to the second fortnight, let us review the principal direct agents of death in the early period. These are four: congenital defects, asphyxia, intracranial hæmorrhage, and infection. These pathological conditions are the actual lethal agents, but behind some of these stand important predisposing conditions, such as maternal disease in pregnancy, difficulty in labour, and, most important of all, prematurity.

Prematurity.—With the new and simpler standard of maturity—a weight of less than 5½ lb.—we can more easily collect and compare the numbers and mortality-rates of premature infants; but, if the collected data are to be exactly comparable, it will be necessary to have an accepted lower standard limit to mark off the non-viable from the viable birth; this lower standard, like the upper, should be one of weight and not of age and might be fixed at 3 lb. In these hospital figures of premature babies, weighing less than 5½ lb. and older than twenty-eight weeks, the incidence-rate is almost 1 in 10 of live births (9·6 per cent.). The death-rate among the prematures was 38·6 per cent., as compared with a death-rate of 2·7 per cent. among mature babies. The importance of prematurity as a predisposing factor in neonatal deaths is clearly shown by these figures. There are two methods of attack on the problem: the more radical one of prevention by improved antenatal care of mothers; and improvement in the nursing and feeding of the premature babies.

Congenital defects have an appreciable share in the aggregate of all series of neonatal deaths and, in the present state of our knowledge, are not likely to decrease.

Asphyxia is an important factor as a direct agent and, as has been said, probably plays an even larger part in minor degrees of transient asphyxia by predisposing to other fatal conditions. Again this presents a hard problem, difficult to control.

Intracranial hæmorrhage is the biggest single factor in neonatal deaths, especially if we consider not only the fatal cases but also those babies that survive with crippled minds and bodies. It is again a formidable problem; but it is receiving from obstetrical science the attention it requires. Here again indirect attack may be helpful, especially since these hospital figures show the greater liability of premature infants to intracranial bleeding; the reduction of the numbers of prematures would immediately reduce the fatal cases of cerebral hæmorrhage. The new remedies for the control of bleeding—e.g., vitamin K—may also do something to help. But all these conditions—congenital defects, asphyxia, and fatal hæmorrhage into the brain, lungs, and elsewhere—represent the hard central core of the neonatal infant deaths, which perfecting of the obstetrical art may reduce but can hardly hope to cut out.

Postnatal infection.—The part played by infection in the early weeks after birth must vary. In many institutions the part is small; in this series of hospital cases it is large. But the material of infection is everywhere and close at hand. It is therefore important that the imminent dangers of infection of the newborn should be recognised and taught to all medical students and especially to nurses. The counter-measures are simple: to place round the newborn, by strict and detailed nursing hygiene, an iron ring of defence sealing the skin surfaces and blocking the entrances—the mouth and nose—to the interior surfaces of the body of every kind of infection, bacterial or mycelial.

First and second fortnight in the first month.—In this hospital series the number of deaths week by week is shown in the lower part of fig. 2; and in the first week there is a subdivision of the first day and the remainder of the week. This time-analysis shows that 100 of the 114 deaths (five-sixths) took place in the first two weeks. The Chicago workers in their investigations into the causes of neonatal deaths have concentrated on this first fortnight; and Dr. H. N. Bundesen, president of the Chicago Board of Health, has given me in a personal letter the figures of infant deaths for Chicago in 1937: the first fortnight, 23 (per 1000 live births); the first month, 25; the first year, 38. The corresponding figures for Edinburgh in 1937 are: the first fortnight, 32; the first month, 38; the first year, 70. Comparison of figures is dangerous; but it is at least safe to say that in Chicago the wastage of infant lives falls to a small trickle after the first fortnight, while in Edinburgh it continues as a steady stream. I have selected Edinburgh as the best of large Scottish towns as regards the infant death-rate. In most of our English and Scottish industrial towns this continued wastage of infant lives after the first fortnight is still heavier.

We can make a general statement: in the first fortnight after birth the antenatal and natal causes of death have spent their force; after this, another and different lethal agent begins to operate. This new factor is mismanagement of feeding in the first month and afterwards, or, in other words, failure in the management of breast-feeding, followed by failure in artificial (cow's milk) feeding. This raises a new and important problem, which will be dealt with in the next paper.

REFERENCES

Bundesen, H. N. et al. (1938) *J. Amer. med. Ass.* **111**, 134.
Ebbs, J. H. (1938) *Arch. Dis. Childh.* **13**, 211.
Macgregor, A. R. (1939) *Ibid*, **14**, 323.

TREATMENT OF CERTAIN TYPES OF EXTERNAL HERNIÆ*

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ALTHOUGH the treatment of the commoner forms of hernia has been established for many years, the advisability of stereotyped operations is often called in question. Since many patients with hernia are operated on in the prime of life, the results of treatment are of especial importance, and it must be kept in mind that recurrence and disability caused thereby may cost an adult his livelihood. With this end in view I have studied the subsequent histories of 2020 patients on whom I have operated for hernia during 1915–39.

The cases fall into the following groups:—

	Cases
Inguinal hernia	1232
Sliding hernia of the sigmoid	15
Sliding hernia of the cæcum	5
Femoral hernia	610
Umbilical hernia	155
Obturator hernia	2
Sciatic hernia	1
Total	2020

The medical student first learns about herniæ in the dissecting-room and naturally concludes that they are of little importance, especially because in most anatomical textbooks the various forms of herniæ are described in small print. The student should study the anatomy of herniæ in the operating-theatre; there alone can he obtain a true picture of the anatomical conditions. That so little interest is taken in the cure of a hernia is a pity. The various operations are usually regarded as of minor importance and to be undertaken by a house-surgeon, being beneath the dignity of a surgeon. A surgeon can do more for the community by operating on hernia cases and seeing that his recurrence-rate is low than he can by operating on cases of malignant disease.

ÆTIOLOGY OF INGUINAL HERNIA

Most cases of indirect inguinal herniæ are congenital, only a few being of true traumatic origin. In many young adults operated on for this condition large sacs are seen which could not have been produced by trauma; yet no symptoms are forthcoming until after some special effort which leads to an increase of intra-abdominal pressure and causes sudden pain and the appearance of a hernia. That stretching of the parietal peritoneum causes pain and shock is a matter of common knowledge, and it is conceivable that, if a large acquired hernia were produced by the excessive stretching of the peritoneum to form a sac, the patient would die of shock before the condition was diagnosed. Another fact which should be taken into consideration is that some patients who undergo a routine barium-meal examination are found to have an inguinal or femoral hernia where no knowledge of such a hernia pre-existed. I have known men passed as fit for the public services after a thorough medical examination who, within a month or so after having been given a barium meal for some abdominal condition, are found to have an incomplete indirect inguinal hernia. Radiologists who are au fait with the possibility of the existence of such a condition can by careful manipulation make the barium pass into a coil of ileum which is in the inguinal canal. As a rule the manipulation should be made two hours after the barium meal. If, however, the lower coils of the ileum are not well filled, the examination should be performed at hourly intervals. Henle, working at the Newark Beth Israel Hospital, was surprised to find how often unsuspected inguinal herniæ could be discovered by this means.

TREATMENT OF INGUINAL HERNIA

Inguinal hernia provides most of the cases and is found in three distinct age-groups: infants, young adults, and elderly people.

In infants inguinal hernia can in some cases be cured with an improvised truss, but in many cases, thought to have been cured in infancy, hernia recurs as the patient reaches manhood, when an operation has to be performed. Such cases are not recurrences at all, because the hernial sac has been present all the time and has never been obliterated. The commonest operation performed in our children's hospitals today is the cure of inguinal herniæ, and rightly so, because operations for inguinal herniæ in infants have a negligible case-mortality, the hernia being cured in every instance, a result which cannot be claimed for any operation for hernia performed on adults. The operation is simple and requires no reconstruction of the inguinal canal. It is to be deplored that medical men often pander to the wishes of parents of children with herniæ and advise against operation at a period of life in which operation gives the best results. One has only to study the records of naval and military hospitals to see how many hernia cases are operated on each year. At the Royal Naval Hospital at Haslar the yearly average number of hernia operations during the last twenty years is 168. Many of these ratings give a history of having worn a truss in infancy. The best treatment, therefore, for inguinal hernia in infants is operation.

In young adults inguinal hernia is congenital and indirect. Operation is the method of choice as regards treatment. Trusses and appliances can never cure the condition and can only make the hernia larger, because the continued pressure brings about compression atrophy of the abdominal muscles. Yet how often surgeons are confronted with patients who have worn a truss for several years and at last desire an operation when the whole musculature of the inguinal region has been reduced to fragile and attenuated fibrous tissue. Operation in such circumstances cannot lead to a high percentage of cures. The operation of choice varies with different surgeons, but the operation, whatever it be, must restore the structures in the inguinal canal as closely as possible to their normal condition. Gentleness is the secret of success. It is the floor of the inguinal canal which is at fault, and in a large percentage of indirect inguinal herniæ there are small direct herniæ present also. If recurrence is to be prevented, these small direct herniæ or, as some would call them, pseudo-herniæ must be treated at the time of operation. In studying a series of recurrent inguinal herniæ, the one fact which becomes obvious is that most of the recurrent herniæ are direct, although the first operation was performed for an indirect inguinal hernia.

During the last few years fascial grafts for the repair of an inguinal hernia have come into vogue, and it has been claimed that the results are better than by other methods. I cannot agree with this view, because the results obtained by ordinary

* Hunterian lecture delivered before the Royal College of Surgeons of England on Jan. 31, 1940.

operation are uniformly good if certain conditions are carried out. The patient should remain in bed for at least two weeks after operation, should have a month's convalescence, and should not do any hard manual work for at least six months. How often are these essential conditions insisted on? In my visits to various hospitals up and down the country I find that the patient is usually discharged from hospital after eight days or less and only given two weeks in which to convalesce before his return to duty. Nearly all the recurrences are seen in the first two years after the operation. In my collection of cases 75 per cent. of recurrences took place within the first year. In my series of 1232 cases of inguinal herniæ there were 1140 primary cases and 92 recurrent cases. The recurrence-rate found as the result of an extensive follow-up is shown in table I.

TABLE I—RECURRENCE IN PRIMARY AND RECURRENT HERNIÆ

Type	Cases	Traced	Recurrence	Percentage
Primary ..	1140	851	46	5·4
Recurrent ..	92	59	23	38·6

In my early cases the suture material used was catgut, but of later years silk has taken its place, because it is easier to sterilise, better tolerated by the tissues, and much easier to use. Further there is no fear of the knots working loose. In my opinion the use of silk ensures neater surgery. The technique of the operation is similar to that of Bassini with certain modifications. The inguinal canal is opened from end to end by incising the external oblique muscle. The sac is carefully dissected off from the anterior surface of the cord. Subsequently the sac is pulled on and, as its neck becomes fully exposed, the extra-peritoneal fat surrounding it comes into view. An opening is made into the sac and the forefinger is passed into it and thence into the peritoneal cavity to discover any adhesions. The finger is then passed downwards beneath the floor of the inguinal canal to ascertain if there is any weakness or bulging in this region. By this procedure a direct hernia, which would otherwise have been missed, is often revealed. Having made certain that the sac is empty, the surgeon twists it so that its lumen is completely obliterated. It is then transfixed at its base. The floor of the inguinal canal is now carefully inspected and any fatty tissue, lipomata, or fatty diverticula removed, for if left they serve as sources of recurrence by dragging on the peritoneum and so causing a bulging to take place. Since it is the floor of the inguinal canal which is weakened by a hernia, it is this structure which needs repair. Bassini's operation of joining the conjoined tendon to Poupart's ligament is unphysiological, for it is impossible for muscular tissue and tendon to unite. On the other hand, if the fascia transversalis is attached to the deep aspect of Poupart's ligament below the cord, the floor of the inguinal canal will be restored (fig. 1). The lower part of the external oblique muscle is then sutured to the fascia transversalis, thereby further reinforcing the floor of the canal (fig. 2). The upper flap of the external oblique muscle is now sutured to the lower sutured flap of the external oblique muscle, thus still further reinforcing the floor of the inguinal canal (fig. 3).

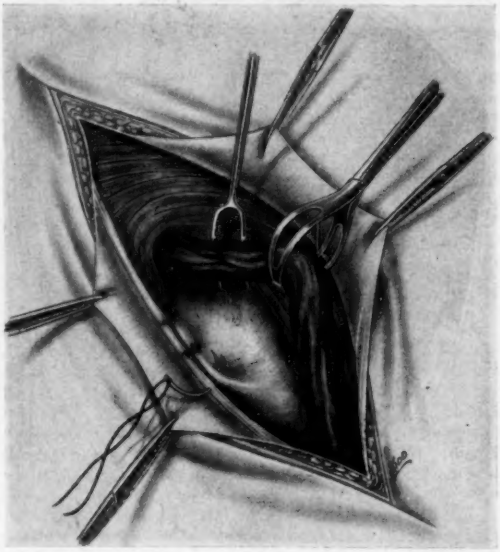

FIG. 1—Radical cure of right inguinal hernia. After the sac has been transfixed and removed, the fascia transversalis is attached to the deep aspect of Poupart's ligament.

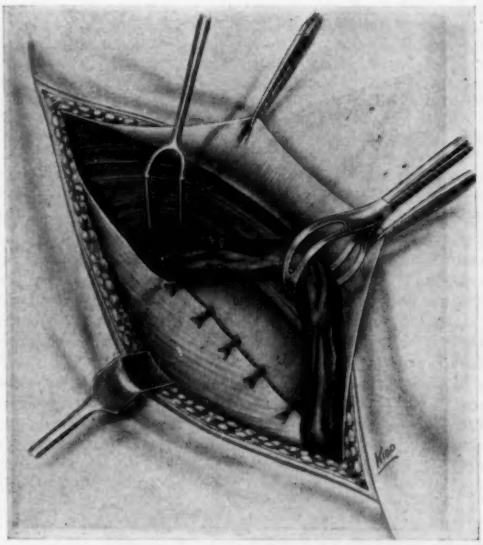

FIG. 2—Radical cure of right inguinal hernia. The lower part of the external oblique muscle is sutured to the fascia transversalis.

The question of operation for direct inguinal hernia is not so important, because many patients are content to wear a truss. Operation is not nearly so satisfactory as in the indirect type, and the recurrence-rate is higher; moreover there is no tendency to strangulation as in the indirect type. If, however, operation is contemplated in a case of direct hernia, it is important to remember that such a hernia consists of a bulging of the posterior wall of the inguinal canal, and any operation for its cure must consolidate the posterior wall and re-form the internal and external abdominal rings. If fascial sutures are used at all, strips of external oblique aponeurosis cut from

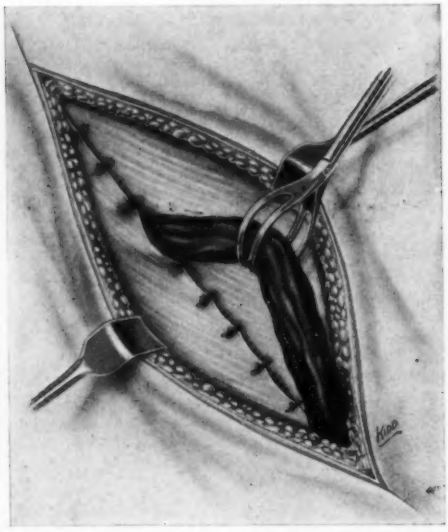

FIG. 3—Radical cure of right inguinal hernia. The upper flap of the external oblique muscle is sutured to the lower sutured flap of the external oblique muscle.

either side of the incision in this structure, made when the inguinal canal is opened at the start of the operation, are by far the best. Such strips of fascia retain their connexions with the aponeurosis below and can be so crossed as to re-form the pillars of the external abdominal ring. The fascial strips can be used to approximate the internal oblique muscle and the conjoined tendon to the deep aspect of Poupart's ligament, without causing any strain. The lower flap of the external oblique muscle is then stitched to the internal oblique muscle, and the upper flap of the aponeurosis finally overlaps the lower and is secured thereto with interrupted fine silk sutures.

The use of fascia lata is deprecated, although I know it is in vogue with a number of surgeons, and a fasciatome is popular. Strips of fascia lata are covered with fat, which must be removed if the graft is to be a success, and for their insertion a large needle is requisite. Such needles injure the already weakened Poupart's ligament and may cause hæmatomata. Hernia of the vastus lateralis muscle through the opening left in the fascia lata is a real disability in some cases. It is true that unless a surgeon follows up his cases he will not see these disabilities, because the patients do not complain about them while in hospital; it is only when they are back at work that this condition becomes manifest. Again, if infection should develop in these cases, a sinus forms and will not close until the whole of the fascial graft has come away as a slough, and this may necessitate several months of inpatient treatment. There can be no doubt that, if the same care and attention both to the preparation of the patient and to the operation were given to the straightforward radical cure as to the modern Gallie fascial grafting operation, the results would be universally good; but, as it is, a radical cure is looked on as a minor operation suitable for the inexperienced to perform, while the extensive fascial grafting operation is looked on as a major procedure which is not beneath the dignity of a surgeon.

As regards recurrent herniæ, every effort should be made to make the patient fit before operation. Any focus of infection in the mouth is to be eradicated and any chronic pulmonary congestion or infection treated. It is only by taking every precaution before operation that good results can be obtained. A chronic cough may often mar a good operation and be responsible for a recurrence of the hernia. The tissues in cases of recurrent herniæ are stretched and attenuated, and muscular tissue is often converted into fibrous. In such cases fine but strong silk gives just as good results as do fascial strips. The conjoined tendon is often composed of fibrous tissues and in these cases can be successfully stitched to the deep aspect of Poupart's ligament. Patients with recurrent herniæ require definite preoperative treatment and, after the operation, should be kept in bed for at least three weeks to allow the tissues to consolidate. While in bed the patient must be encouraged to move about and perform regular breathing exercises to obviate so far as possible thrombosis, embolus formation, and pulmonary collapse. At the present time there is a tendency to neglect to give advice about convalescence and the routine to be followed by these patients when they leave the hospital. The surgeon expects the house-surgeon to do it, while the house-surgeon considers it is the sister's duty, while she in her turn thinks the dresser of the case is the person responsible. The result is that the patient is too often given no instructions whatever. It is always worth the surgeon's while to give a few minutes' advice to the patient, before he leaves hospital, on the importance of exercise, especially walking, a suitable diet, and the avoidance of constipation or of any sudden strain.

The extraperitoneal approach to inguinal herniæ has been advocated by Cheatle and Henry. I have assisted the former in many operations in the past when this method has been used, and I am convinced that it is an unsound operation. On anatomical grounds it may seem logical, but it is a difficult operation, and the sac is sometimes so adherent that the

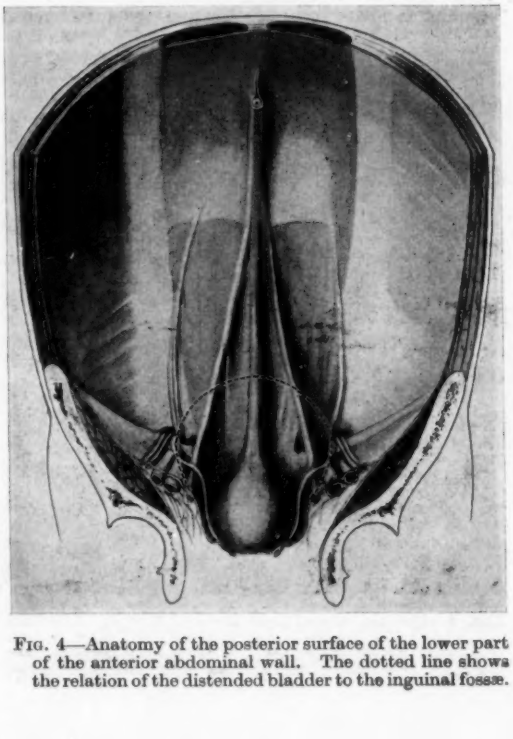

FIG. 4—Anatomy of the posterior surface of the lower part of the anterior abdominal wall. The dotted line shows the relation of the distended bladder to the inguinal fossæ.

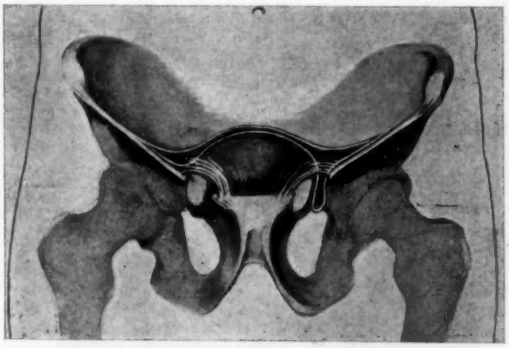

FIG. 5—Diagram showing an extraperitoneal hernia on the right side and a paraperitoneal hernia on the left side.

fundus may have to be left in the inguinal canal. To gain sufficient exposure to enable the surgeon to see what he is doing requires great retraction of the tissues, which are therefore considerably injured. The recurrence-rate is very high—about 45 per cent. of the patients, operated on by Sir Lenthal Cheatle at King's College Hospital, whom I was able to trace. This approach is most unsatisfactory and in my opinion should not be employed.

ANÆSTHESIA IN HERNIA OPERATIONS

In the past anæsthetics have played their part in the production of recurrent herniæ. My routine is avertin anæsthesia followed by a minimal amount of gas and oxygen. I have never seen any ill effects from avertin anæsthesia, although other surgeons may not have been so fortunate. Spinal anæsthesia gives excellent relaxation, and some hundreds of my patients were operated on under this anæsthesia. However, since one patient developed paralysis of the legs after the operation, this form of anæsthesia was abandoned. Inhalation anæsthesia is responsible for more complications after hernia operations than any other form: ether pneumonia and bronchitis and wound hæmatomas which appear three or four days after operation. The constant coughing leads to the slipping of a ligature or the tearing through of a suture and produces a small hæmorrhage. Chloroform anæsthesia is excellent, but anæsthetists are chary of using it lest the coroner might have something to say if the patient should die; yet no word of complaint is ever levelled at the anæsthetist when ether is used. Chloroform inhalation is the best form of anæsthesia for children. Local anæsthesia has its advocates, and in some cases it is the only justifiable form of anæsthesia.

HERNIA OF THE BLADDER

Hernia of the bladder is far commoner than is generally supposed; and, when the condition is not recognised and dealt with, recurrences take place, the bladder itself being the factor mainly responsible for the recurrence. In a series of 5000 cases of inguinal herniæ operated on at King's College Hospital and the Belgrave Hospital for Children in 1908–37 there were 75 cases of hernia of the bladder: 3 extraperitoneal, 48 paraperitoneal and 24 intraperitoneal. It is surprising that these herniæ are not common, and that surgeons take but little notice of them.

If the posterior surface of the lower part of the anterior abdominal wall is examined, three inguinal or vesical fossæ can be seen on each side, all of which are in relationship with the distended bladder (fig. 4). These three fossæ are bounded by the urachus, the obliterated hypogastric artery, and the deep epigastric artery. The urachus, being a single median structure, intervenes between the two medial inguinal fossæ, the lateral boundary of the internal inguinal fossa being the obliterated hypogastric artery. The external inguinal fossa lies lateral to the deep epigastric artery.

Herniæ of the bladder may be divided into three varieties according to the relationship of the hernia to the parietal peritoneum: extraperitoneal, paraperitoneal, and intraperitoneal. The commonest variety is the paraperitoneal (fig. 5). The treatment of these bladder herniæ is important, and the surgeon should always keep in mind the possibility of such a complication when he is operating on a direct hernia. Should a paraperitoneal hernia be discovered during an operation, the bladder should be carefully separated from the hernial sac by gauze dissection (fig. 6) and the protruded part of the bladder invaginated into the abdomen and kept there by the insertion of a purse-string suture through the floor of the inguinal canal.

FEMORAL HERNIÆ

Femoral herniæ are not nearly so common as the inguinal variety, and their treatment must be surgical, because it is far too dangerous to apply a truss, which never can be made to fit properly, and which may cause strangulation. As in the treatment of inguinal hernia, many operations for femoral hernia have been advocated and described. In my series of 610 cases of femoral herniæ there were 535 primary cases and 75 recurrent cases, and the recurrence-rate found as a result of the follow-up is given in table II.

TABLE II—RECURRENCE IN PRIMARY AND RECURRENT FEMORAL HERNIÆ

Type	Cases	Traced	Recurrence	Percentage
Primary ..	535	436	20	4·6
Recurrent ..	75	51	31	60·7

These figures show that the recurrence-rate after operation for femoral hernia is not so great as that for the inguinal variety, and I am sure that in my figures the high operation or inguinal route for femoral hernia was responsible for most of the recurrences, and not

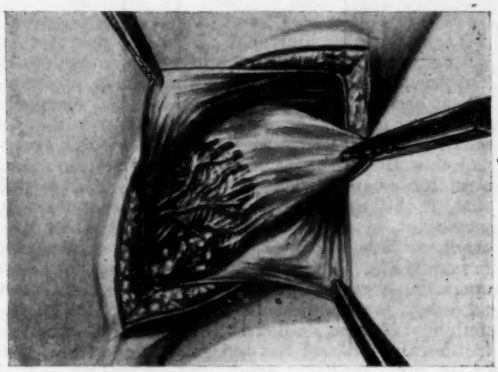

FIG. 6—Paraperitoneal hernia of the bladder as seen at operation. The bladder is separated from the hernial sac by gauze dissection.

only so but in a large percentage of cases a direct inguinal hernia followed this high operation. It is only by making use of an extensive follow-up over a period of several years that such facts are forthcoming. Once a femoral hernia has recurred, it is difficult to cure it by operation, a second recurrence being likely to take place in 60 per cent. of cases operated on. In the Royal Navy medical service there is an excellent follow-up system for all hernia cases, with a special card for primary cases and another for recurrent cases. In the R.N. Hospital at Haslar the average number of hernia operations is 168 a year and the recurrence-rate is under 5 per cent., a tribute to the operative technique and treatment by the naval surgeons. Here again a patient with hernia is kept in bed for three weeks and then given sick-leave and returns to light duty for at least three months, a rational form of treatment which surgeons in civil hospitals might well follow.

The low operation for femoral hernia has several points to recommend it. A more direct access is obtained, and the sac is easily found, isolated, opened, explored, and transfixed, and its distal part removed. The femoral ring can be closed with a series of interrupted silk sutures introduced through the fascia clothing the pectineus muscle, the inner end of Poupart's ligament, and the falciform ligament (fig. 7). Recurrence after this simple operation is less than 2 per cent. In the high operation an inguinal incision is used and the posterior wall of the inguinal canal is incised to expose the sac. The dissection and delivery of the sac above Poupart's ligament may be difficult and occasion some bleeding. In my figures the recurrence-rate after this operation was nearly 9 per cent., and some patients developed a direct inguinal hernia afterwards. In my opinion the so-called old-fashioned low operation still gives excellent results.

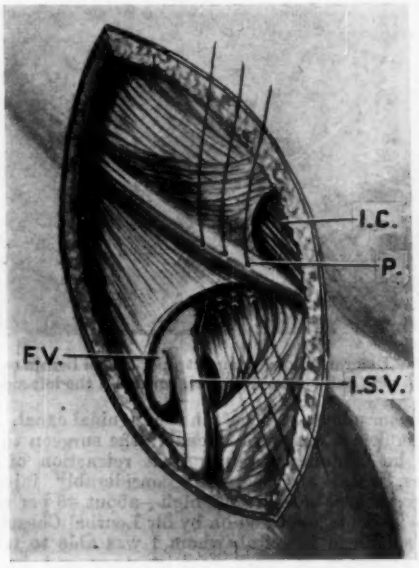

FIG. 7—Anatomy of the region where femoral hernia develops: F.V., femoral vein; I.C., inguinal canal; I.S.V., internal saphenous vein; P., Poupart's ligament. Three stitches have been inserted through Poupart's ligament and the pectineal fascia.

UMBILICAL HERNIA

There are two age-groups in the treatment of umbilical hernia in my series of 155 cases: infants and adults. Table III gives the results of the follow-up.

TABLE III—RECURRENCE AFTER OPERATION FOR UMBILICAL HERNIA

Type	Cases	Traced	Recurrence	Percentage
Infants	98	90	Nil	Nil
Adults	57	45	10	22·2

No infant with umbilical hernia was operated on until every effort to cure the hernia by other means had been adopted. In many children a large umbilical hernial sac is present and does not disappear even after prolonged treatment with trusses of every make and originality. In such cases a simple operation to excise the sac is all that is required, no reconstruction whatever being necessary. It is suggested that, if this simple operation were more commonly performed in infants with large umbilical herniæ, there would be far fewer cases appearing or recurring in middle life. Again, there is no recurrence after this operation, a great argument in its favour. It is not necessary, and indeed it is wrong, to excise the umbilical cicatrix; all that is necessary is a curved incision above the cicatrix and isolation and transfixion of the sac. Probably every surgeon will agree that the best operation for umbilical hernia is Mayo's, and rightly so, for it gives excellent results with a low recurrence-rate. My figure of 22·2 per cent. of recurrences is due to the fact that it includes cases operated on by overlapping the recti muscles, a method followed by a high recurrence-rate.

The after-treatment in cases of umbilical herniæ in adults is most important. They should be nursed in the Fowler position, and twice a day Carbogen should be inhaled, for there is a definite tendency in these cases for the lower lobes of the lungs to undergo collapse. Regular contractions of the recti muscles should also be encouraged. The patient should undergo careful preparation, and particular care should be taken to make the skin of the abdominal wall surgically clean, for it is only by strict observance of detail that good results can be obtained.

In conclusion it is suggested that more interest should be taken by the surgical profession to ensure good results in the treatment of herniæ, as a consequence of which fewer patients will suffer recurrence and incapacity.

OUR Budapest correspondent writes: Dr. Szemkeö has drawn attention to the effect of sugar on obstinate ulcers. A patient of his had a big aphtha in the mouth for which the usual remedies were tried in vain. He discharged himself from hospital and returned two days later with the ulcer completely healed. One of the neighbours in his village had suggested rubbing the ulcer with cube sugar, and this his wife had done, with dramatic success. Szemkeö then tried this remedy on varicose ulcers, boils and ulcers of the palate due to dental plates, and all these yielded to sugar treatment. For aphthæ he simply rubs the base of the ulcer with a lump of sugar—a second application is rarely necessary. For varicose ulcers he uses an ointment made of powdered sugar and vaseline, or where there is deep ulceration he fills the cavity with powdered sugar and applies a bandage over it.

THE LUMBAR CURVE IN WOMEN

CHANGES PRODUCED BY DISPLACEMENT OF THE CENTRE OF GRAVITY

By L. K. Klinderová

(*From the Department of Public Health of the State Institute of Public Hygiene, Prague*)

(*Concluded from p.* 784)

Sex.—Fig. 7 shows the proportional distribution of the groups in the two sexes. In the girls the negative group (lordosis deepened) was the largest (40 per cent.) and the positive group (lordosis flattened) the smallest (21·2 per cent.). In the boys the positive group (30·4 per cent.) was larger than the negative group (28·8 per cent.). The positive-negative group in the girls is almost equal to the negative group. Perhaps this difference between the sexes is due to differences of the body structure. As a rule boys have broader shoulders and thorax than girls, and it may be that they counteract the displacement of their centre of gravity by bending forwards, thus compensating the reduced depth of their lumbar lordosis by their increased thoracic kyphosis. Girls, on the other hand, have a stronger pelvis than boys; as soon as the inclination of the pelvis increases with the raising of the heel, a girl regains her balance by bending back her shoulders and head, while again her lordosis is deepening.

Age.—Fig. 8 shows the proportional distribution of the three types of reaction in girls grouped according to age. There is not much difference between the first three age-groups, comprising girls aged 15–20, but in the girls aged 21 or more the positive reaction (lordosis flattened) is commoner than in the girls taken as a whole (fig. 7). There is little reason to suppose that the spines older than 21 years are not supple enough and therefore counteract the displacement of the centre of gravity by forming a simple arc. Nevertheless it is possible that age is a factor in this incidence of flattened lordosis.

Physique.—The boys came from the socially lower classes of a Prague suburb and were of weaker physique than the girls. It was therefore interesting to observe how girls of different physique reacted to the displacement of the centre of gravity. Since girls with a lower physical index showed a relatively greater frequency (29·1 per cent.) of positive reactions compared with that of the girls as a whole, we consider that they have a greater tendency to counteract the displacement of the centre of gravity by flattening their lordosis. The less fit condition of the boys was also reflected in the greater incidence (25·8 per cent.) of traces of rickets among them than among the girls (8·4 per cent.). When these girls were measured, we found that they also had a greater tendency to react to displacement of the centre of gravity by flattening the lordosis.

Anthropometry.—We also considered the relationship of anthropometrical data, such as the height when sitting and the length of the sole of the foot, to the total height of the person measured. The greater the percentage of the total height taken by the height when sitting, the lower the centre of gravity when standing and the smaller its displacement on wearing high heels. On the other hand, a high centre of gravity will, owing to the lesser stability, need a greater effort to counteract its displacement. Fig. 9 shows how girls with a long trunk and those with a short reacted to displacement of their centre of gravity. The three middle groups, which measured when sitting 52, 53, and 54 per cent. of their total height, include three-quarters of all the girls and show no remarkable differences from the girls taken as a whole (fig. 7). The two extreme groups, with a short trunk (46–51 per cent. of the total height) and with a long trunk (55–57 per cent. of the total height) differ greatly in their reaction. The group with a short trunk, which we had supposed to be less well balanced because of its high centre of gravity, reacted mostly (45·2 per cent.) by the deepening of lordosis. It therefore seems that this reaction is the most important. Of the girls with a long trunk 46·4 per cent. reacted by alternate reduction and increase of lordosis, only 14·4 per cent. by flattening of lordosis, and 39·2 per cent. by increased lordosis.

If we consider the sole of the foot, raised by high heels, as an inclined plane, whose slope depends on the length of the plane and on its height at one end, we must admit that not only the height of the heel but also the length of the sole of the foot can influence the displacement of the centre of gravity. The shorter the sole of the foot in relation to the whole height, the steeper is its inclination to the ground and the greater is the displacement of the centre of gravity, and conversely. Fig. 10 illustrates the findings when the girls are arranged in groups according to the proportion of the length of the sole of the foot to the total height. The girls with the relatively longest soles (16 per cent. of the total height) counteracted the displacement of the centre of gravity by deepening lordosis in 30·6 per cent. of cases only. The girls with the relatively shortest soles (14 per cent. of the total height) showed this reaction in 41·3 per cent. of cases. This observation confirms to some degree the importance attached by us to this reaction.

Gymnastics.—Since muscular contraction plays a great part in counteracting the displacement of the centre of gravity, we worked out the figures for groups of girls according to the amount of gymnastics practised (fig. 11). The first group practised no gymnastics except at school; the second practised regularly in gymnastic clubs; the third attended, besides gymnastics, also courses of rhythmics and, in several cases, ballet-dancing; and the fourth came from the course of gymnastics organised for gymnastics teachers of the secondary schools. No other grouping shows such a regular arrangement of reactions as this (cf. figs. 8–10, 12, and 13). The positive (flattening) and twofold (alternate flattening and increase of lordosis) reactions are commonest in the group which practised only in school; then they gradually decreased and are least in the group that attends the course for gymnastics teachers. Negative reactions (increased lordosis), on the other hand, are least (34·8 per cent.) in the girls practising gymnastics only at school; then gradually they rise, until they reach 51·2 per cent. in the group attending the course for gymnastics teachers. There is no doubt that the future gymnastics teachers, some of whom were already in the third year of their studies, which besides theory included much gymnastics and sports, had the greatest physical development of all the girls measured. We may therefore assume that their control of muscles was the most perfect, and that their way of reacting to the displacement of the centre of gravity was the most natural. Most of them were of an athletic constitution and had a normal or almost normal type of spine.

Type of spine.—The reactions of different types of spine are shown in fig. 12. The girls with lordotic spines, whose angle of lordosis was already very pronounced, increased and flattened their lordosis

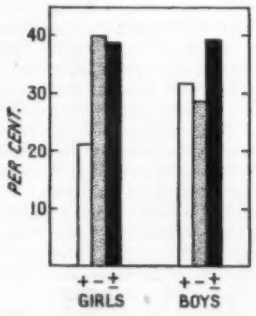

FIG. 7—Proportional distribution of different types of spinal reaction in girls and boys. Positive reaction = flattened lordosis; negative reaction = increased lordosis; positive-negative reaction = alternate increase and flattening of lordosis.

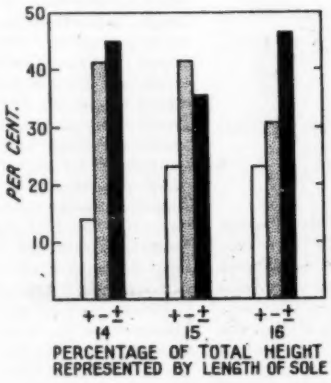

FIG. 10—Proportional distribution of different types of spinal reaction in girls grouped according to relative length of sole.

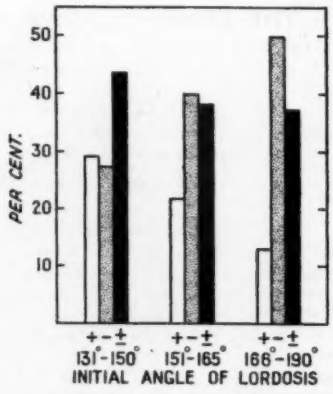

FIG. 13—Proportional distribution of different types of spinal reaction in girls grouped according to their initial (barefoot) angle of lordosis.

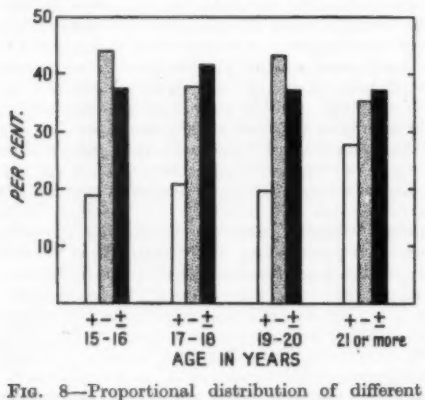

FIG. 8—Proportional distribution of different types of spinal reaction in girls grouped according to age.

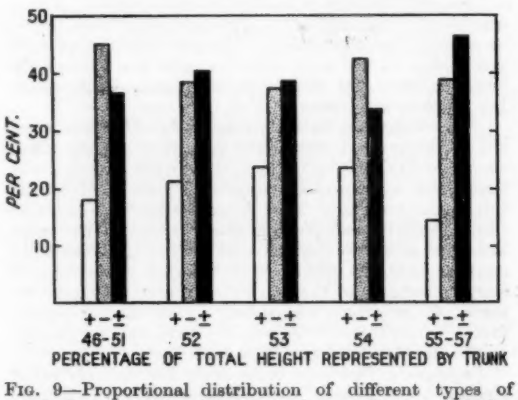

FIG. 9—Proportional distribution of different types of spinal reaction in girls grouped according to relative length of trunk.

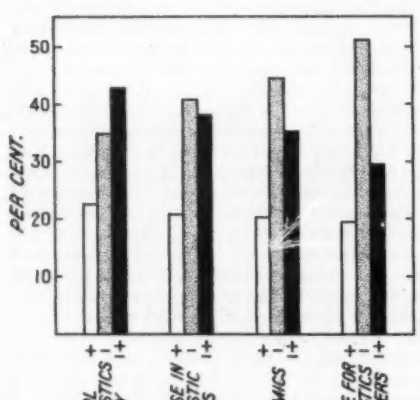

FIG. 11—Proportional distribution of different types of spinal reaction in girls grouped according to amount of gymnastics practised.

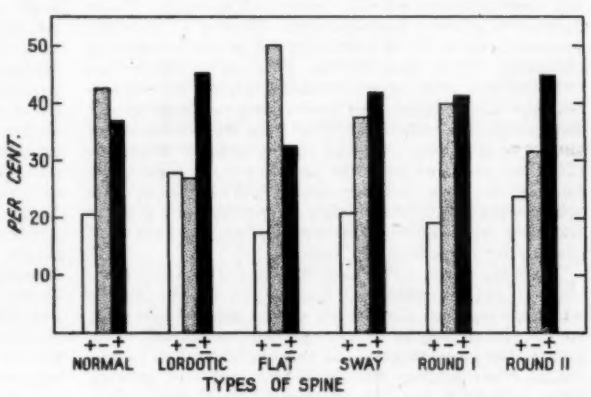

FIG. 12—Proportional distribution of different types of spinal reaction in girls grouped according to type of spine—Wiles's (1937) classification.

in almost equal numbers (about 27 per cent. of cases); the greatest number (45·1 per cent.) showed alternate increase and flattening. The girls with a flat spine deepened lordosis in 50 per cent. and flattened it in 17·5 per cent. of cases; 32·5 per cent. of the girls in this group alternately increased and decreased their lordosis.

In fig. 13, the girls are grouped according to the values of their angle of lordosis when standing barefoot. The group 151°–165°, which we have denoted as the norm, reacted much like the total number of girls taken together (fig. 7). The girls with the initial angle below the norm deepened their lordosis in 27·3 per cent. of cases and flattened it in 29·09 per cent.; most often they gave a twofold reaction. The girls with the initial angle above the norm deepened their lordosis in 49·6 per cent. of cases and flattened it in only 13·1 per cent. The frequency of a twofold reaction did not differ much from that of all the groups taken together (fig. 7).

COMMENTS

The spine always reacted to the displacement of the centre of gravity; but, since its upright posture is maintained by a complex mechanism, so many factors contribute to the preservation of balance on a change of posture that the variability of the reaction should not occasion any surprise. By grouping and regrouping our cases we have shown how different factors seem to cause the spine to react to displacement of the centre of gravity sometimes by deepening, sometimes by flattening and sometimes even by alternate deepening and flattening the lordosis. The type of spinal curvature seems to be the deciding factor in the type of reaction, for we observed that girls with lordotic spines reduced their lordosis more than girls with normal spines, whereas girls with flat spines deepened it more than girls with normal spines. It would need a specialist to judge whether this observation can be put to practical use in remedial orthopædics.

SUMMARY

With a specially constructed dorsimeter we have taken tracings of the profiles of spines of 934 girls and young women and 66 boys and have observed the way in which the angle of lumbar lordosis changed when the centre of gravity was displaced by wearing heels of gradually increased height (3, 5, 7, and 9 cm.).

The spine reacted in one of three ways. In 21·2 per cent. of all the girls measured the angle of lordosis was increased (the lordosis was flattened) and in 40 per cent. the angle of lordosis was decreased (the lordosis was increased). Both of these reactions had already been observed by other workers. We found also, however, that in 38·8 per cent. both reactions took place successively—i.e., in the same person the angle of lordosis increased at one height of the heels and decreased at another. Thus, we could see that the angle of lordosis was increasing, or else decreasing, until a certain height of the heels had been reached, whereupon further heightening of the heels caused the spine to bend in the opposite direction. Limitation of lordosis was especially noticed in those girls who had lordotic spines.

Factors which seem to determine the type of reaction of the spine include the physical index, the degree of physical training, and the shape of the spine (which is reflected in the angle of lordosis ascertained by the initial tracing made with the subject standing barefoot).

References at foot of next column

INSULIN SUPPOSITORIES

BY B. BRAHN, Ph.D. Tübingen

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EVER since the introduction of insulin for the treatment of diabetes, methods of administering it other than by injection have been investigated. Insulin given by mouth is destroyed by the digestive ferments. Lasch and Schönbrunner (1938) demonstrated in vitro that insulin could be protected against digestion by the addition of dyes, one of which precipitates trypsin and the other pepsin. In the long run, however, such a precipitation of the digestive ferments seems hardly possible without serious digestive trouble. Cutaneous, lingual, nasal, and vaginal applications of insulin have also been abandoned.

The absorption of insulin from the digestive tract was studied by Walton and Bassett (1933) in dogs with Thierry loops about 12 cm. long and 50–60 cm. above the end of the ileum. Insulin, dissolved in alcohol or in a salt solution, placed in the duodenum gave good results. Salvioli and Corbini (1930) tried to administer insulin through the rectum and found that in babies and young children insulin was absorbed from a salt solution. With older children and adults the insulin was effective only when introduced into the more proximal parts of the intestine. On the whole the therapeutic results obtained were not encouraging. Other authors also have confirmed that insulin administered through the rectum remains ineffective.

When given by mouth insulin, before being absorbed, is destroyed in the stomach by the peptic ferments in an acid medium and in the intestine by the tryptic ferments in an alkaline medium. When introduced into the rectum insulin is destroyed by the tryptic digestive ferments operating in an alkaline medium. Therefore our object was to protect the insulin against these ferments, which can only act in an alkaline medium, by adding acids to it and to accelerate its absorption by adding substances that increase the surface tension. As vehicle for these various substances we chose suppositories of cocoa butter.

EXPERIMENTS

The tests were carried out on rabbits and healthy human beings (figs. 1–4). The rabbits were kept on a diet of oats, water and hay. The blood-sugar estimations were made by the Hagedorn-Jensen method at intervals of 15–30 min., beginning 30–40 min. after the introduction of the suppository. About 150 tests on rabbits and as many on human beings were carried out. (Tests on dogs, which also gave positive results, were abandoned because of technical difficulties connected with the necessity to draw blood at short intervals).

MISS KLINDEROVÁ: REFERENCES

Fairweather, S. D. (1921) *Lancet*, **2**, 1019.
Merchant, J. W. (1928) Iowa thesis.
Mitchell, G. A. G. (1936) *Lancet*, **1**, 75.
Morton, D. J. (1935) The Human Foot, New York.
Roth, P. B. (1931) cited in *Lancet*, **2**, 1297.
Stewart, H. E. (1920) Physical Reconstruction and Orthopedics, New York.
Tandler, J. (1926) Lehrbuch der systematischen Anatomie, Leipzig.
Wiles, P. (1937) *Lancet*, **1**, 911.

The following results were obtained :—

(1) Suppositories consisting of cocoa butter and insulin had no effect on rabbits or on man. Rabbits were given up to 15 U. and human beings up to 150 U.

(2) The addition of acid preserved the efficacy of the insulin in cocoa-butter suppositories. Of inorganic acids, hydrochloric acid was tried; of organic, lactic, tartaric, citric, palmitic, and acetic acids. A combination of lactic and palmitic acid proved most effective. However, since palmitic acid melts only at 60° C., it was necessary to melt it first with cocoa butter in the proportion of 15 to 85; this yielded a mixture with a melting-point of 33° C.

(3) In rabbits the addition of certain saponins preserved the efficacy of the insulin in the cocoa-butter suppository. It did not do so in man.

(4) The addition of saponin increased the intensity and duration of the action of an acid-containing insulin suppository in rabbits and man. Tests were made with white saponin from saponaria root, from the bark of guaiacum and of horse-chestnut, and from liquorice root. It was found that the saponaria saponin, which, according to Kofler, is innocuous when taken by mouth, may, when introduced into the rectum, cause the rabbit's death through hæmolysis, whereas all the other saponins were innocuous. For this reason we abandoned our experiments with white saponin.

The action of insulin introduced in suppositories sets in very soon, attaining its maximum after 30–40 min., when the action subsides again rapidly. Bigger doses of insulin not only increase the intensity but also the duration of the action. The effect of insulin suppositories may be varied either by increasing the insulin content in an otherwise unchanged composition, or by modifying the quantity of acid and saponin without changing the amount of insulin, or by varying the quantity of each substance. Laboratory experiments showed a correlation between the insulin content, the other components being equal, and the effectiveness. To what extent this correlation will be maintained when the insulin content has to be increased for diabetics remains to be discovered.

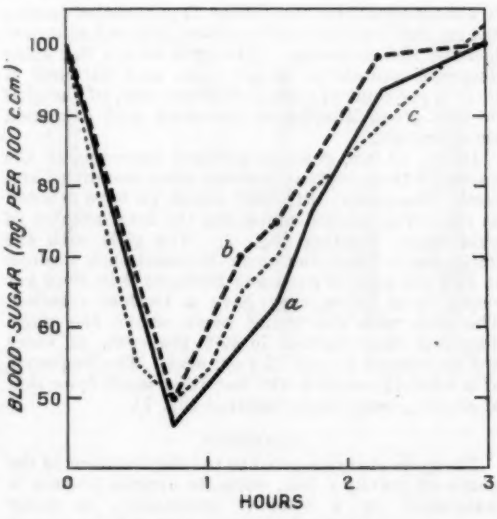

FIG. 1—Average values of blood-sugar in many experiments on rabbits given suppositories of (*a*) cocoa butter, insulin, lactic acid, palmitic acid, citric acid, and saponin derived from bark of guaiacum; (*b*) cocoa butter, insulin, lactic acid, palmitic acid, citric acid, and saponin derived from horse-chestnut; (*c*) cocoa butter, insulin, lactic acid, palmitic acid, and glycyrrhizin.

To avoid irritation, a certain quantity of acid and saponin, differing for each substance, should not be exceeded. A small quantity of added Anæsthesine does not reduce the efficacy of the insulin suppository.

Average values of blood-sugar in many experiments on normal *human beings given insulin suppositories*

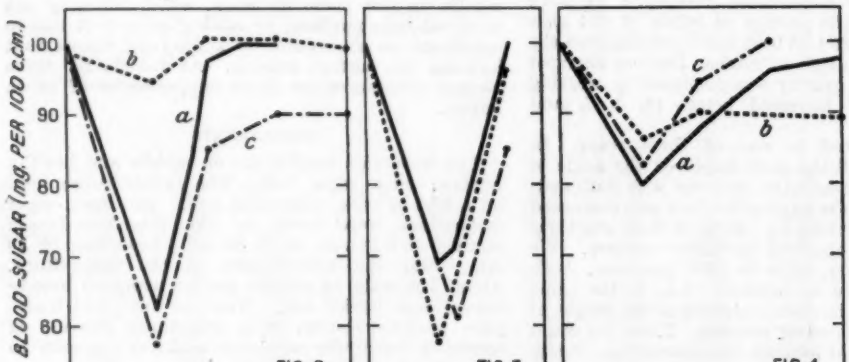

FIG. 2—(*a*) Cocoa butter, insulin, and lactic acid; (*b*) cocoa butter and insulin; (*c*) cocoa butter, insulin, lactic acid, and saponin derived from bark of guaiacum.

FIG. 3—Cocoa butter, insulin, lactic acid, and saponin derived from horse-chestnut. The only difference between the curves is that different quantities of saponin were used, the amounts of insulin and of lactic acid remaining constant.

FIG. 4—(*a*) Cocoa butter, insulin, and hydrochloric acid; (*b*) cocoa butter, insulin, acetic acid, and palmitic acid; (*c*) cocoa butter, insulin, and lactic acid. The quantity of insulin remained constant.

CLINICAL TESTS

Wuhrmann (1939) has clinically tested insulin suppositories and found them to be of value. One suppository unit is apparently equivalent to about ten injection units. Contrary to all expectations, insulin suppositories have a prolonged action, up to eight hours. Further investigations will be necessary to judge of the practical and

wider application of these suppositories in the treatment of diabetes.

SUMMARY

Tests with insulin suppositories made on rabbits and healthy human beings are reported. The action of the insulin sets in very soon and subsides rather rapidly. It is possible to vary the intensity of the action at will. The suppositories proved to be of clinical value.

REFERENCES

Lasch, F. and Schönbrunner, E. (1938) *Klin. Wschr.* **17**, 4, 114.
Salvioli, C. and Corbini, S. (1930) *Pediat. Riv.* **38**, 921.
Walton, R. P. and Bassett, E. F. (1933) *Proc. Soc. exp. Biol., N.Y.* **30**, 1184.
Wuhrmann, F. (1939) *Schweiz. med. Wschr.* **69**, 35, 787.

SUBENDOCARDIAL HÆMORRHAGES IN SHOCK

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MOST of the literature on shock deals with experimental or clinical studies, and relatively little has been published about its morbid anatomy. I have previously pointed out that subendocardial hæmorrhages are among the most regular pathological findings in shock due to obstetric causes (Sheehan 1939). These hæmorrhages are found characteristically on the left side of the interventricular septum, about half-way down from the aortic cusps. They may also be found on this surface further down towards the apex or may involve the base of the musculi papillares or some of the trabeculæ on the posterior wall of the ventricle. Large lesions may extend upwards on the septum to about 1 cm. below the aortic cusps. The lesions vary from pin-head petechiæ up to enormous hæmorrhages covering almost the entire septum. They are usually superficial, but grosser hæmorrhages may spread for some distance into the muscle. Their general distribution is thus very similar to that of the Purkinje fibres from the left branch of the auriculoventricular bundle. They are not found on the right side of the heart.

INCIDENCE

No figures of their exact incidence were given in the previous paper (Sheehan 1939) because some of the autopsies on which that study was based had been done before specific attention was paid to the presence or absence of the hæmorrhages. The collection of reliable data on this matter requires an ad-hoc investigation. The lesions are commonplaces of pathology, and there is perhaps a tendency to pass them over as merely terminal changes which, unless they are large, are hardly worth noting in routine autopsy records. Besides, small hæmorrhages are easily obscured by post-mortem hæmolytic staining of the endocardium.

The figures in the present paper are from the routine obstetric autopsies, made in this hospital in the last 2¼ years, in which a systematic search for the hæmorrhages was made in every case. The examinations were always made soon after death, to avoid autolytic changes. The findings, arranged according to the cause of death, are shown in the accompanying table.

The cases of shock in the series resulted from the usual obstetric causes: dystocia in 16 cases, retained placenta in 12, uteroplacental apoplexy in 9, rupture or inversion of the uterus in 5, and other conditions, including cases where hæmorrhage played some part, in 10. The shock deaths are grouped in the table according to the duration from the onset of the shock to the time of death. It will be seen that patients who died within a hour had usually no subendocardial hæmorrhages, but that after this time the incidence and the size of the lesions increased steadily. All the patients who had continued in shock for 5–8 hours before death had the hæmorrhages, usually large ones. After this time there were 6 late deaths in which various complicating factors, such as early sepsis, were associated with the shock and played an important part in causing death; the incidence and size of the lesions were much less in these cases. Nevertheless, all these fatal cases of shock being taken together, it will be seen that subendocardial hæmorrhages were found in over three-quarters of the autopsies. This raises the question of whether they occur in non-fatal shock. There were 8 patients in the series who had recovered from shock at delivery but died from other causes in the puerperium. Definite small hæmorrhages were found in 1 of these patients, but they were rather faded, as if they were a few days old, and in 2 other patients there were rather doubtful small lesions of this sort.

POST-MORTEM FINDINGS IN OBSTETRIC CASES

Type of death	Cases with subendocardial hæmorrhages			
	None	Small	Moderate	Large
Shock lasting: ½–1 hour	4	1	—	—
1–2½ hours	2	2	4	—
3–4½ ,,	1	3	5	4
5–8½ ,,	—	2	3	7
9–19 ,,	3	2	1	—
Recovered shock	5	3	—	—
Eclampsia	3	2	1	4
Hyperemesis	6	2	—	—
Other cerebral lesions	10	1	1	—
Other causes	55	—	—	—

Subendocardial hæmorrhages were often found in patients who had died of eclampsia; the 5 moderate or large lesions were all in patients who had had cerebral hæmorrhages of various kinds. They were also found in 2 patients who died of hyperemesis, possibly in relation to the Wernicke's encephalopathy which is usually present in these cases. Besides these there were 2 cases among the 12 patients who died of other cerebral lesions such as thrombosis, embolism, encephalitis, or meningitis. Among the other types of death, non-shock and non-cerebral, there was not a single case with subendocardial hæmorrhages. These included sudden deaths, such as under anæsthesia or from heart disease; deaths from hæmorrhage without shock; and more gradual deaths of various kinds. Purpuric diseases can affect the endocardium in the same way as any other part of the body, but it so happened that no cases of this sort were included in the present series.

DISCUSSION

These subendocardial hæmorrhages form a specific pathological lesion with a very definite localisation and cannot be considered as merely one aspect of generalised damage to the capillaries. They are not to be confused with the widespread hæmorrhages in mucosæ and serosæ which some authors record in animal experiments, but which have not been found in the present series of cases of shock in human beings.

They cannot be dismissed as "agonal lesions" which may occur in any kind of death; on the contrary, they are restricted to certain special types of death. Further, the close relation between their incidence in cases of shock and the duration from the onset of shock to the time of death suggests that they usually take some time to develop. In patients who die some days after recovery from shock there are usually no remaining lesions, or, if present, they are quite small. It appears, therefore, that the hæmorrhages take place not in the lesser degrees of shock but only in severe or fatal cases. Besides the references given in the previous paper (Sheehan 1939) on this subject, it may be noted that Dean and Webb (1924) found the lesions in the hearts of 19 out of 33 dogs after anaphylactic shock. On the other hand, Moon (1936) does not refer to them at all in his description of the pathological findings in shock.

Identical lesions are recorded in non-obstetric autopsies in general hospitals, usually in patients with cerebral conditions, such as fractured skull, cerebral hæmorrhage, or meningitis. They have been described in the coma deaths due to heat stroke (Wilson 1940) and in the coma deaths of delayed chloroform poisoning (Sheehan 1940). In the present series they were found often in eclampsia and occasionally in the encephalopathy of hyperemesis or in other cerebral deaths. This suggests the possibility of a similar nervous mechanism in their production, both in the cerebral and in the shock deaths. Acute dilatation of the stomach in some cases of shock may be a related nervous phenomenon, but the lesions found in other viscera in shock are probably not associated with this nervous aspect of shock.

These hæmorrhages under the endocardium are probably not serious lesions in themselves; but they appear to be a post-mortem indication that a local vascular disturbance has been present for some time before death in this important region of the heart. Such a vascular disturbance could be of serious consequence, but it is not clear whether it plays a significant part in the production of the syndrome or whether it is only one of the effects of severe shock. The present figures deal only with shock in obstetric patients; sufficient evidence is not yet available to discuss the exact incidence of subendocardial hæmorrhages in other varieties of shock.

SUMMARY

Subendocardial hæmorrhages, localised to the left side of the interventricular septum and less often also to the musculi papillares and trabeculæ of the left ventricle, are almost invariably present in obstetric deaths from shock, except when the patient dies rapidly. The fact that they are also found in deaths from various kinds of cerebral lesions suggests a possible nervous mechanism for their production in shock. They are presumably a post-mortem indication that a vascular disturbance in this region has been present for some time before death, but the relationship of this vascular disturbance to the syndrome of shock is not yet elucidated.

I have to thank Dr. M. D. Crawford for continuing these observations since the outbreak of the war and for providing details of the autopsies during that period.

REFERENCES

Dean, H. R. and Webb, R. A. (1924) *J. Path. Bact.* **27**, 51.
Moon, V. H. (1936) *Arch. Path.* **22**, 325.
Sheehan, H. L. (1939) *J. Obstet. Gynæc.* **46**, 218.
— (1940) *Ibid*, **47**, 49.
Wilson, G. (1940) *J. Amer. med. Ass.* **114**, 557.

WOUNDS OF THE CHEST TREATED BY ARTIFICIAL PNEUMOTHORAX

BY CAROL H. KRETZSCHMAR, M.D. Graz.

THE treatment of wounds of the chest by artificial pneumothorax was introduced into the Italian army in 1916 by Major Morelli. It was not used in the British or the French armies during the last war, and the method was not developed after the war because wounds of the chest are uncommon in civil practice.

In the Spanish war it was found that many wounds of the chest could be satisfactorily treated by conservative measures—rest and sedatives. But the number of thoracic wounds which require early operation has increased with the greater use of modern projectiles. There are also some thoracic wounds which heal spontaneously if allowed to do so, but impair the efficiency of the lung later.

CLOSED PENETRATING WOUNDS

In the closed penetrating wound the opening in the chest wall or in the lung is insufficient to allow air freely to enter the pleural cavity. In this type there is likely to be only a small pneumothorax, but hæmothorax is common. Therefore in these cases our chief aim must be to treat hæmorrhage and its consequences. The bleeding may be from an injured vessel in the chest wall, which can be controlled by ordinary surgical methods, or may be from the lung or from both. The severity of hæmorrhage from the lung depends on the extent of the wound and the size of the vessels injured. Typically, in wounds caused by modern fire-arms the internal damage is greater than the external wound, which is often only a small puncture. Radiography may show multiple splinters of metal (*Lancet* 1939) distributed over 10–15 sq. cm. of lung.

Even if there is not a large wound of the lung, or an injury of large vessels, a massive hæmothorax may be found. Such profuse slow hæmorrhages are dangerous and easily overlooked.

One young soldier I saw in the Spanish war had a small wound in the chest and, when first seen in the front line, did not appear to be severely wounded. Seven hours later, however, he was dead from intrathoracic hæmorrhage.

Steinke reports 2 among his 87 cases of stab wounds and gunshot wounds of the chest admitted to the Akron City Hospital (Ohio) in which death took place two days after admission; 1 of them died of hæmothorax and shock, and the other of hæmothorax. Similarly, in the Official History of the Great War, Gask (1922) wrote: "Many people died from comparatively small hæmorrhages, which could have been easily stopped."

The hæmorrhage is intensified or prolonged by the negative pressure in the pleural cavity. It is incorrect to say that the pressure of the blood in the pleural cavity checks the hæmorrhage; in many cases with a wound in the upper part of the lung the hæmothorax does not even reach the level of the wound. Since the introduction of about 2000 c.cm. of air into the pleural cavity is needed to collapse the lung, it is easy to see how harmful a negative pressure will be to a wounded lung with a closed traumatic hæmothorax. Since in all penetrating wounds of the chest pneumothorax is usually present, spontaneous cessation of hæmorrhage from the lung is more probably due to the pneumothorax, which partially or completely collapses the lung, thus abolishing the negative

pressure in the pleural cavity; making the blood-vessels of the lung shrink and become tortuous, so that the blood-pressure in the pulmonary vessels, which is normally only a third, or even less, of that in the systemic vessels, is not sufficient to expel the blood *; and mechanically diminishing or closing the wound in the lung.

Sometimes the hæmorrhage continues after the induction of artificial pneumothorax; therefore the pulse-rate, respiration-rate, and general condition of the patient must be carefully observed. At first the pulse may be surprisingly strong, but often this is a false sign. A slow pulse-rate results often from an irritation of the vagosympathetic nerves and therefore is not a sure sign of sufficient cardiac action. If the hæmorrhage continues in spite of artificial pneumothorax, early operation is definitely indicated.

A closed pneumothorax should never be regarded as a complication, and it does not need treatment, unless there are signs of infection or there is excessive tension. Artificial pneumothorax can therefore be performed without introducing a complication or creating a new danger. Besides stopping the hæmorrhage artificial pneumothorax immobilises the lung, thus helping it to heal, and after healing the lung can expand to its normal position. When there are sharp splinters in the lung, immobilisation is of the greatest value. Further, collapse of the lung prevents the formation of adhesions between the visceral and parietal pleura.

The presence of blood in the pleural cavity is harmful and dangerous; the blood provides a medium for the growth of micro-organisms, with a risk of empyema, and absorption of the blood takes two to three months. Its coagulation leads to fibrinous adhesions and obliteration of the pleural sinuses. Organisation of the clot is associated with great thickening of the basal pleura, with the result that normal function of the lung and diaphragm is subsequently impeded.

A Canadian, aged 55, wounded in the lower part of the right lung, had a massive hæmothorax. He was treated expectantly and recovered, but with almost complete fixation of the diaphragm and some retraction of the thoracic wall. Radiography showed only partial expansion of the lung and great thickening of the pleura. Deep respiration was associated with great pain, and even slight bodily exertion caused dyspnœa.

In this case an artificial pneumothorax, combined with aspiration of the blood, would have produced a better result. For all the above-mentioned reasons it is necessary to aspirate the blood in the pleural cavity as soon as possible and simultaneously to substitute air for the blood by inducing an artificial pneumothorax.

OPEN PENETRATING WOUNDS

In an open wound of the chest there is an obvious pneumothorax, with a tympanitic sound on percussion, due to the communication of the pleural cavity with the exterior through either the thoracic wall or a bronchial tube. Injury of a large bronchial tube was very rare in Spain; possibly the projectile pushes aside the resilient bronchial tubes. Moreover, if a large bronchial tube were injured, the wound would usually be fatal, because the large vessels lying close to the tubes would also be injured, producing a massive hæmorrhage, possibly into the bronchial tree, which would cause suffocation.

Every open wound of the chest should be transformed as soon as possible into a closed one by careful excision of the wound and by airtight suture, because the intrapleural negative pressure sucks the infected exudate of the wound into the pleural cavity. If the lung is wounded, artificial pneumothorax should also be induced, unless a complete pneumothorax is already present. It is most important that the blood should be removed as completely as possible from the pleural cavity as a precaution against the development of a pyohæmothorax. Bastianelli sterilised the pleural cavity by thoracocentesis and cleansing with isotonic solution of sodium chloride.

The opening in the thoracic wall may be so large that the air enters and leaves the pleural cavity freely. Breathing soon ceases and the heart quickly fails owing to "fluttering" of the mediastinum. During the Great War Morelli advocated the use of rubber bags which, when inflated with air inside the wound, seal the opening and stop the intercostal hæmorrhage. In Spain a provisional dressing of airtight oiled silk and Elastoplast was provided, which could be easily applied over the thoracic wound by any first-aid man.

VALVULAR WOUNDS

In this type of wound there is a valvular communication between the pleural cavity and the external atmosphere through either the thoracic wall or the upper air-passages, allowing the air to enter the pleural cavity but not to escape again, with the result that a high-pressure pneumothorax develops, which is accompanied by surgical emphysema, often extending into the mediastinum. The affected side of the chest is motionless, and the intercostal spaces bulge outwards. Movement of the sound lung is impeded by the displaced mediastinum. The affected lung is compressed against the mediastinum. Such a pneumothorax is worse on the right side than on the left, because of the compression of the large veins and the right heart. Increasing dyspnœa and deep cyanosis appear, with shallow inspiration, slow expiration, and a weak pulse with a fast rate. Reduction of the intrapleural pressure produces a rapid improvement, and most of the symptoms disappear immediately if there is no mediastinal emphysema.

When a high-pressure pneumothorax is accompanied by a hæmothorax, the blood should be aspirated and air allowed to escape through the needle until atmospheric pressure is reached in the pleural cavity. If the pneumothorax is due to a valvular communication with the upper air-passages, the intrapleural pressure will rise again after it has been lowered; therefore continuous aspiration must be used. To effect this a cannula is inserted into the affected side in the posterior axillary line; the cannula is connected through a length of rubber tubing to a bottle of sterilised water. As soon as the intrapleural pressure is equal to the atmospheric pressure, a little air will escape only during expiration. In doubtful cases such a pneumothorax can be tested for with the pneumothorax apparatus (manometer).

NON-PENETRATING WOUNDS

The blast of high-explosive bombs commonly causes compression or concussion of the chest wall and may rupture the lung without producing any penetrating wound. The rupture may involve only internal alveoli and not extend to the pleura. The patient will then often have no symptoms except a mild hæmoptysis and cough, which can be treated simply with morphine, codeine and rest. If the rupture involves the pleura and a hæmothorax is present, the spontaneous pneumothorax should be supplemented by an artificial pneumothorax to prevent traumatic pneumonia and stop the hæmorrhage.

* Radiograms of collapsed tuberculous lungs often show a sharp angulation of the large vessels.

PROPHYLACTIC USE OF ARTIFICIAL PNEUMOTHORAX

When an operation on a lung is definitely indicated, artificial pneumothorax can be of great value to collapse the lung as early and as completely as possible. If the patient has to be transported to a distant hospital, artificial pneumothorax should be induced before he is moved. A complete pneumothorax puts the lung at rest and abolishes pain, thereby reducing shock. At the same time, the heart and opposite lung have time to adapt themselves to altered conditions, and the patient reaches the operating-table in better condition. When a great loss of blood has already been sustained, a blood-transfusion must be given before the patient is moved. Anæmia is more severe when one lung does not function and the other lacks an adequate supply of blood through hæmorrhage. Steinke (1939) and Sauerbruch (1930) have reported good results from the use of autogenous transfusions.

SUMMARY

Nearly all penetrating wounds of the chest cause pneumothorax. A traumatic pneumothorax is not an indication for operation, unless it is valvular or complicated by an infected effusion or by progressive hæmorrhage from the lung. When there is progressive hæmorrhage from the lung, and when there are foreign bodies in the lung, a complete artificial pneumothorax should be induced to cause entire collapse of the lung. The hæmothorax, if large, should be cleared out by thoracocentesis as completely as possible, because its absorption takes a long time, causes thickening of the diaphragm and pleural adhesions, and impedes the cardiac action and the expansion of the sound lung, and there is a risk of pyopneumohæmothorax, with a doubtful prognosis.

The artificial pneumothorax has its therapeutic effect on the wound of the lung, stops or reduces the hæmorrhage from the lung, prevents the obliteration of the sinuses and the formation of adhesions between the visceral and parietal pleura, protects the lung from further damage due to movement of foreign bodies, and prevents inflammation of the lung caused by these foreign bodies. Therefore artificial pneumothorax should have a permanent place in thoracic surgery, especially in war-time.

REFERENCES

Gask, G. E. (1922) History of the Great War. Medical Services: Surgery of the War, p. 345.
Lancet, 1939, **2**, 111.
Sauerbruch, F. (1930) Chirurgie der Brustorgane, 3rd ed., Berlin.
Steinke, C. R. (1939) *J. thorac. Surg.* **8**, 658.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

PHYSICAL MEDICINE

AT a meeting of this section held on April 19, with the retiring president, Dr. J. B. MENNELL, in the chair, a paper on the organisation of

Physical Medicine in the Emergency Medical Services

was read by Sir ROBERT STANTON WOODS. At the outset of the war, he said, physical medicine already occupied an important place in the emergency medical scheme of the Ministry of Health. It was organised on a national scale and was represented, like general medicine, general surgery and other specialties, by a consultant adviser to the minister. Its organisation falls naturally under three main heads: medical personnel, auxiliary personnel and technical equipment. The group officer of each of the ten sectors has selected a specialist in physical medicine for his sector, and these specialists are now employed on the "retainer" basis which applies to specialists in all the sectors. In the majority of the regions a similar choice has been made. London is apparently ahead of the rest of the country in its application of physical medicine; in several of the most important regions no medical practitioner has devoted himself mainly to this specialty.

In 1938 the Chartered Society of Massage and Medical Gymnastics recognised the necessity of organising in a special corps those members who were willing to serve. The corps now numbers between 5000 and 6000, out of a total membership of 11,000. The register contains names in alphabetical order, in three grades according to seniority, and in three classes according to mobility, immobility and existing employment in the emergency medical scheme. The probable demand for these auxiliaries is assessed on the number of beds of certain grades for which responsibility is assumed by the Ministry of Health, and on the probable nature of the casualties which may occupy those beds. Mobile members can be transferred to meet sudden local demands. During 1939 hospitals had almost ceased to replace their old equipment of apparatus, and its manufacture had ceased; in September the stocks in the hands of the makers was negligible. On Sept. 8 a specification for quantities of essential units was placed with the Ministry of Health, and the bulk of this order has now been delivered. Its distribution will be entirely in the control of the hospital equipment officer at the ministry.

Treatment carried out in a suitable department is, said Sir Robert, more economical in time, equipment and finance than treatment at the bedside. A large proportion of the E.M.S. hospitals already possessed physiotherapy departments. It would be impracticable to provide all the other E.M.S. hospitals with departments, but these are being supplied to all the orthopædic centres. Each group and hospital officer has supplied a further list of hospitals in which new departments are likely to be needed. Gymnasium exercises and occupational therapy are prominent in the organisation, and facilities for them are being provided at orthopædic centres.

A discussion followed, and in reply to questions, Sir Robert said that his office was confined strictly to advising the Ministry of Health on matters concerning physical treatment in the E.M.S. hospitals, and that his duties in no way concerned hospitals under the care of the Admiralty, War Office or Air Force. It was therefore impossible for him to make any statement as to the provision made for physical treatment other than under the E.M.S. In answer to another question he added that there was a liaison officer between the Ministry of Health and the War Office.

Physical Treatment of Nerve Injuries

Dr. JOHN COWAN, in a short paper, said that nerve injuries were plentiful during the last war. They can be divided into preoperative and postoperative. Preoperative injuries include atrophy, stiffness, vasomotor disturbances, sepsis and causalgia. If the nerve injury causes degeneration, definite atrophy will result. Nerve irritation will produce the same result

even if there is no reaction of degeneration. If atrophy is severe and prolonged the muscle-fibres may almost completely disappear, and then it will be of little avail to restore conductivity to the nerve. Efficient massage and galvanic stimulation will retard wasting and should be begun as early as possible, but galvanism should not be overdone or the muscles will become fatigued. Masseuses are perhaps insufficiently instructed that the stimuli should be the weakest which will cause a response. Over-strong stimuli will delay recovery. If the indifferent electrode is badly placed other muscles may respond instead of the affected ones, but this can be overcome by the bipolar method of applying an electrode at each end of the muscle belly. Surging instead of interrupted currents will often effect a cure. Stiffness should be prevented by full-range passive movement of all joints, and if it is already present it can be counteracted by gradually increasing passive movement. It is a mistake to put a joint forcibly through its full range of movement. Masseuses are prone to maintain the relaxed position during the treatment; this is a serious error, for the controlled joint quickly becomes stiff. Joints should be put through their full range of passive movement at least once a day. True passive movement involves no muscular contraction and will do no harm.

In the vasomotor disturbances slow sinusoidal or surged galvanic currents give the best result. The vasometer mechanism is slow in action, and so the stimulus also should be slow—2 to 4 per second. Contrast baths have not been found very useful. Sepsis should have disappeared before the nerve is sutured. Before operation the part should be subject to deep massage, for this will cause a flare-up of any latent sepsis and prevent premature operation. The anodal galvanic bath is most effective in clearing up septic wounds. Causalgia is intractable to physiotherapy.

Operative measures include neurolysis, suture, transplantation of nerve, nerve anastomosis and tendon transplantation. Neurolysis often gives rapid recovery and a better functional result than nerve-suture, the end-results of which vary considerably and are never perfect. The fewer the sensory fibres associated with the motor fibres, the better the results. Massage, passive movement and galvanic stimulation should continue until good voluntary movements are obtained, and then faradic stimulation should replace galvanism. There is no advantage in interposing a period of combined currents. As soon as voluntary movements are obtained, the patient should be instructed in suitable exercises. When the nerve is sutured, many fibres will regrow down foreign nerve-sheaths, and the patient must adapt himself to the new conditions. Before transplanting tendons the muscles concerned should be given surging faradism twice or three times a day in consultation with the surgeon. The secret of success lies in the complete taking-up of all slack. Physiotherapists should constantly supervise the work of their auxiliaries, as some modification of the routine technique will often improve the result, especially in re-education.

Balneological Treatment of War Injuries

Dr. A. R. NELIGAN said that certain types of war neuroses were treated twenty years ago by prolonged deep baths at about 90° F. Rheumatic conditions in which trauma plays a part are bound to increase during the war, especially as a result of trench warfare. Gonococcal arthritis has been successfully treated by hyperpyrexia induced by steam-baths. Circulating baths are of benefit in vascular disorders. Whirlpool baths may play a useful part in the post-operative treatment of injured soft tissues. After adequate rest, activity may be quickly restored by graduated movement in a pool, together with the application of heat. Convalescence after fracture, and perhaps bony union, may be hastened. The after-treatment of joint injuries, dislocations and wounds, and of bone operations, may be well carried out in pools. Salt-water pools have been used in America in the treatment of chronic sepsis of bone or joint. Sir Henry Gauvain has successfully treated all forms of osteomyelitis and surgical tuberculosis in children by sending them into the sea. After manipulation, one of the pleasantest and most successful ways of preserving and increasing movement is exercise in a warm therapeutic pool: Dr. Neligan referred to Dr. Matthew Ray's paper on this subject (*Lancet*, April 13, 1940, p. 683). No doubt, he said, the authorities intend to house as many war casualties as possible who need bath treatment in or near existing centres where other methods of physical treatment are available; unfortunately many spas, owing to their safe position, have had their proper activities seriously impaired. Perhaps public swimming-baths could be adapted. A pool for adults should be large enough to allow patients to swim a few strokes: 24 to 30 by 12 to 15 ft., with a maximum depth of 4 or 5 ft. They should be furnished with seats, gymnastic apparatus and under-water douches; shower-baths, foot-baths, sprays and rest rooms with hot towels should be provided. The warmth of the water relieves spasm and pain. Buoyancy counteracts gravity; muscles can perform in water many movements of which they are incapable in air, and with far less fatigue. The patient develops his own muscles, and their contraction, combined with the pressure of the water, is an effective form of massage, invaluable in the rehabilitation of patients suffering from fibrositis, arthritis, certain forms of paralysis, phlebitis and injuries. Patients, however, are seldom sent for water treatment, and baths are seldom mentioned in books on orthopædic surgery. Much greater use might well be made of this physiologically correct form of treatment, and it has a specially wide scope in the many injuries of the locomotor system which are so common in war.

ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS

AT a meeting of the association on April 19 the problem of

Tuberculosis and the Industrial Worker

was discussed. Dr. P. M. D'ARCY HART dealt with the close relationship that exists between the incidence of tuberculosis and the degree of industrialisation of the community. Industrialisation, apart from any special hazards incurred in certain types of occupation, facilitates the spread of tuberculosis by increasing the frequency of personal contacts and therefore the opportunity for infection. Both the progressive increase in the entry of young women into industry that began about the end of last century and the sudden increase during the last war were closely reflected in the adverse course of their mortality from respiratory tuberculosis. Dr. Hart pressed for efforts on the part of industrial medical officers and others to control any similar exacerbation during the present war. He sets most value on ensuring early diagnosis

through routine health examinations accompanied by radiography of the chest. For working girls coming from rural districts to industrial areas where the incidence of tuberculosis might be high such routine examinations should be repeated at intervals. Mass radiography has been made much easier and cheaper by the introduction of miniature fluoro-photography. From experience of large schemes of health examinations now in operation he thought that there would be little or no opposition by the workers themselves to examinations made by factory medical officers.

Dr. CHARLES SUTHERLAND discussed the risks of tuberculosis in industries involving exposure to silica. He pointed out that a new worker entering a silica-risk industry may be tuberculous on entering, may have a quiescent lesion which becomes active, or may become infected within a few years of starting work. Having become infected, the worker may develop the condition known as silico-tuberculosis which usually becomes open tuberculosis after a number of years. Such a man probably is only infectious to other workmen for a short period, as he quickly becomes unfit for work. In certain occupations with intense exposure, as in sandblasting, a worker with quiescent tuberculosis has his foeus reactivated. In other industries the focus remains quiescent for years, but ultimately becomes active after simple silicosis has developed. As a prophylactic measure, in addition to continuing with improvements in the hygiene of working conditions, Dr. Sutherland urged the importance of medically selecting the workers entering the silica industries. Silico-tuberculosis could be greatly reduced by preventing, through initial and repeated medical examinations, any tuberculous person being employed in a silica-risk industry and so infecting fellow workers possibly rendered more susceptible by their previous exposure to silica. Silico-tuberculosis can be minimised by reducing the risk of infection with tuberculosis as well as by measures directed to eliminating silicosis. He protested against the view that all adult tuberculosis was due to the reactivation of a childhood infection.

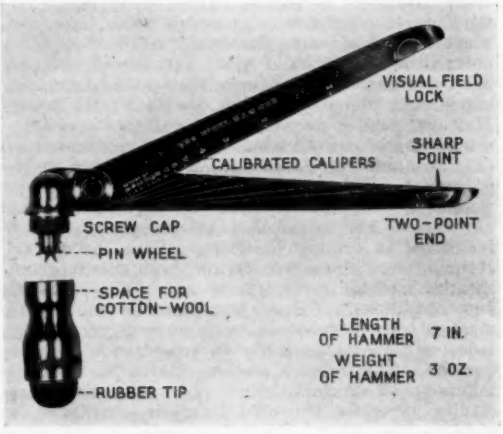
Sir HENRY BASHFORD spoke about the experience of tuberculosis among Post-Office workers. The Post Office, he said, is the largest and probably the most varied industrial unit in the country, but its employees are to some extent a selected group, since the majority have been examined medically at least once, and in most cases twice, before establishment. All new cases of respiratory tuberculosis are seen by Post-Office doctors, and after periodical reports from sanatoria or hospitals every case is re-examined by a Post-Office doctor before being allowed to resume duty. The incidence of respiratory tuberculosis, which compares favourably with that of the community, has declined steadily for the last 20 years. It is highest, both for men and women, between the ages of 20 and 30. With Dr. W. L. Scott Sir Henry Bashford published in 1936 an analysis of the after-histories of 3755 cases arising between 1914 and 1926. Although, in addition to the usual Civil Service sick-pay allowances, the Post Office permits very liberal sick absence in cases of respiratory tuberculosis as long as medical reports are favourable, it is a constant finding that half of all new cases do not recover sufficiently to return to duty. Of those who return nearly half are invalided within ten years for recurrence of the disease or for other forms of ill health, although every effort is made to provide them with suitable employment. After ten years the prospects are much better, and the loss in the next five years is only 14 per cent. In the experience of the Post Office over many years the personal contact factor does not appear to be of much importance, and Sir Henry Bashford inclines to the view that the majority of new cases are due to the reactivation of some earlier or childhood focus of infection, to intercurrent illness or strain, or to anxiety.

In the discussion that followed Dr. G. T. HEBERT emphasised that mass X-ray examinations must be regarded as a sieve for separating suspicious cases. Such cases must be re-examined from time to time in order to detect any progressive changes in their earliest stages. Dr. E. J. KING described the structure of silicotic nodules and the criteria for their recognition. Dr. DONALD STEWART pointed out the difficulties now existing in the examination of new entrants to industry both on account of the shortage of qualified staff and the great and rapid movements of workers to war-time industries. Dr. JOHN CRAW said that mass radiography has proved of great value in the hæmatite mining industry both by preventing the employment of tuberculous men and by facilitating the earlier detection of tuberculosis amongst men actually engaged in mining. Dr. E. L. MIDDLETON expressed the hope that adequate arrangements would be made for the care of those found to be affected should mass diagnosis on the lines proposed by Dr. Hart and other speakers be attempted.

New Inventions

A COMPACT NEUROLOGICAL INSTRUMENT

THIS instrument, the combination of several pocket instruments, will be found useful in summing up the effects of wounds on the nervous system. It weighs 3 oz., measures 7 in. long, and easily fits into a military pocket. The handles are calibrated up to 20 cm. and can be used in measuring the diameter of the heart and other objects. The ends are designed for testing two-point discrimination, and the lock has a sharp point for testing pain sensation. A 3 mm. objeet



can be enamelled in white on this lock for roughly testing visual fields. The head, made of duralumin, is in two parts: the lower section has a soft-rubber percussion tip of standard (door-stop) size, and a compartment for cotton-wool; the upper section, with a fine steel pin-wheel for testing pain sensation, screws into the lower compartment. This "hammer" was constructed by a group in the graduate school of McGill University, aided by the department of mechanical engineering.

HAROLD ELLIOTT, M.D.

REVIEWS OF BOOKS

Textbook of Surgery

(5th ed.) By JOHN HOMANS, M.D., clinical professor of surgery, Harvard Medical School. London: Baillière, Tindall and Cox. 1940. Pp. 1272. 44*s*.

THIS book is compiled from the lectures and writings of the members of the surgical department of the Harvard medical school, and provides just the clear and concise account of its subject that the undergraduate student needs. Each chapter or section begins with an historical sketch which makes interesting reading and gives the student a firm basis for intelligent discussion with his examiners. The main stress is laid on the clinical picture, pathology and treatment being dealt with more briefly. The general principles of treatment rather than details of operation are set out, which is as it should be in a work of this kind, but it is strange that the illustration of a Murphy button as used for intestinal anastomosis is thought worthy of inclusion, particularly as it receives no mention in the text. The illustrations are mostly reproduced from drawings made by Mr. Shepherd and are so good that even the 513 presented seem too few. Altogether it would be difficult to find a better single-volume textbook of surgery for the student.

Blood Groups and Blood Transfusion

(2nd ed.) By ALEXANDER S. WIENER, A.B., M.D., serologist and bacteriologist in the office of the chief medical examiner of New York City. London: Baillière, Tindall and Cox. 1939. Pp. 306. 27*s*. 6*d*.

THE large-scale enrolment of blood-donors throughout the country in the last year has stimulated a widespread interest in blood-groups, and a new edition of this classical study could not have come at a more opportune moment. Much new material about transfusion has been included, especially about technique, indications and reactions. The section on preserved blood is brief, but America is still at peace. No mention is made of the most recent work on the substitution of plasma or serum for whole blood under certain conditions. Wiener himself when possible still prefers to give fresh uncitrated blood, which is at variance with English practice. The enormous advantages of the drip technique of Marriott and Kekwick are considered in this country to outweigh the possible disadvantages of transfusing small amounts of citrate solution. The latter half of the book deals with the heredity of the blood-groups, and their medicolegal and anthropological and zoological application. These pages contain a rather alarming series of diagrams and mathematical formulæ, but even those unversed in statistics and their application will find them a mine of interesting information. Thus, he tells us that the blood-group of mummies can still be determined; therapeutic malaria inoculation of incompatible blood takes twice as long to incubate as an inoculation of compatible blood; group-specific substances are contained in body fluids other than blood, especially in the saliva. The bibliography is complete and the book has the rare merit of being of equal interest to the research worker, the layman in the street, and the medical man.

Rôle de la constitution dans les maladies infectieuses des enfants

By HANNA HIRSZFELD, docteur en médecine. With a preface by Prof. ROBERT DEBRÉ. Paris: Masson et Cie. 1939. Pp. 152. $0.70.

IN this monograph Professor Debré reminds us of Madame Hirszfeld's earlier collaboration with her husband, Prof. Ludwik Hirszfeld, in the study of blood-groups. The present work evolved naturally from this and was undertaken in the children's hospitals of Warsaw. After a preliminary discussion of the general mechanism of immunity processes and of the great racial and individual variations in susceptibility to disease, the author travels along the well-trodden path of plant and animal genetics. She follows this with a concise outline of contemporary research in human genetics and in the hereditary character of blood-groups, and tries to establish a hereditary base for immunity mechanisms. She gains some support for her attempt by investigating the frequency of certain illnesses in families and by the study of uniovular and binovular twins, but no very firm conclusions can be drawn. Nor, in fairness, does she draw any, the monograph being written throughout with commendable restraint and with a clear recognition of the numerous other factors which are known to influence the individual conflicts of infection versus resistance. The study must be regarded as a preliminary one, calculated to arouse the interest of clinicians and immunologists in this aspect of genetics.

Textbook of Psychiatry

For Students and Practitioners (5th ed.) By D. K. HENDERSON, M.D. Edin., F.R.F.P.S., F.R.C.P.E., physician-superintendent of the Royal Edinburgh Hospital for Mental Disorders, professor of psychiatry in the University of Edinburgh; and R. D. GILLESPIE, M.D. Glasg., F.R.C.P., physician for psychological medicine to Guy's Hospital, London. London: Humphrey Milford, Oxford University Press. 1940. Pp. 660. 20*s*.

THE principal features of this standard British treatise which so admirably steers a middle course between continental (Kraepelinian) and American (Meyerian) psychiatry have remained unchanged in this edition. There is still the wealth of case-histories illustrating and enlivening the often controversial psychiatric classifications and theories which are presented in clear and not too technical language. Since the last edition practical psychiatry has been swept by a wave of therapeutic activities applying physical methods like hypoglycæmia and convulsions. The detailed résumé of these methods now given, and the guarded but not discouraging judgment on their value, will be welcomed by every student of psychiatry. Another important addition is a chapter on psychopathic states. Although the first description of a group of these constitutional anomalies was given by an English psychiatrist over 100 years ago, the concept has not gained much ground here until lately. Psychopathic states in the wider sense, as the concept is used in many countries today, have a great practical significance; the authors' reminder that more attention should be paid to psychopathy underlying psychoneuroses will have the support of most experts. Many chapters of the book have been amended to keep pace with recent research. Obsolete material has not been removed everywhere, but the effort to keep abreast of the times has been mainly successful. Only the "short bibliography of principal works" has been excluded from the renovating process: none of the books mentioned is dated later than 1934. German books of Kretschmer and Storch which have since been translated into English are still quoted with their German titles, and the omission of works of the Meyerian school like Diethelm's "Treatment in Psychiatry" and Kanner's "Child Psychiatry" will need to be corrected in the next edition. Other desirable additions would be a more complete and

modernised version of the chapter on cerebral arteriosclerosis and its differential diagnosis, a common problem of practical psychiatry; and a fuller account of the sexual abnormalities. Where is the G.P. to look for psychological advice if confronted with one of the frequent cases of impotence and frigidity if he does not find it in his textbook of psychiatry?

The Neurogenic Bladder

By F. C. McLELLAN, M.S., M.D., instructor in surgery, University of Michigan medical school. London: Baillière, Tindall and Cox. 1939. Pp. 206. 22*s*.

THE neurogenic bladder, for the understanding of which a knowledge of neurology is essential, often provides a difficult problem to the urologist. He will therefore welcome a summary of the recent work on the subject in a readily understandable form. Dr. McLellan is an efficient guide in the difficult no-man's land between the domains of the neurologist and the urologist. His book is based on original observations, especially cystometric readings of the bladder. Five hundred cystometric studies were performed on neurogenic and non-neurogenic bladders, and some two hundred neurogenic cases were analysed to provide a clinical background. The technique employed in cystometry with the Munro cystometer is described and there are 57 figures and charts illustrating the text. Cystometry has not received the attention it deserves in this country, and it is to be hoped that this book will stimulate British urologists to add cystometric readings to the other methods of examination employed in the elucidation of obscure cases.

Hearing and Equilibrium

By H. MACNAUGHTON-JONES, M.B. R.U.I., clinical assistant to the ear and throat department of the North London Hospital. London: Baillière, Tindall and Cox. 1939. Pp. 128. 7*s*. 6*d*.

THE avowed purpose of this book is to explain in simple terms a new theory of the physiology of hearing and equilibrium. All but the last chapter is taken up by an account of the former, and the latter is briefly dismissed in 13 pages. The author's thesis is that sound-waves are gathered up by the drum, directed to the membrane covering the round window and thence to the fluids in the cochlea. The basilar membrane and associated structures convert the cochlea into a graduated resonator capable of responding to an infinite gradation of frequencies and of resolving into its component parts any complicated pattern of sound-waves. The argument is based on diagrams of the structures taken from various textbooks and also on experiments with models. There is nothing essentially new in any of these assumptions (no experiments on the ear itself are quoted) and it is difficult to understand the reason for the vehemence with which the whole point is laboured. Much of the book is repetitive, and descriptive terms are loosely used making it difficult to follow the central arguments. Much is doubtful. To take the author's initial contention that the round window is the portal of entry of sound-waves to the cochlea (described by Politzer many years ago as an alternative method in certain circumstances); it has been shown experimentally by many observers that a loss of hearing invariably occurs when any parts of the ossicular chain is removed or damaged. Dr. Macnaughton-Jones also regards the ossicles and accompanying muscles as forming a protective mechanism for the cochlea controlling the foot-plate of the stapes so that its movements may guard the cochlear fluids against excessive displacements. He compares this function with that of the iris. But he does not explain what happens in cases where disease has interfered with the drum and ossicles but where hearing perception is normal (cases of conduction deafness only). There is less to criticise in the remainder of the book, and indeed much of it is current belief elucidated in the last ten years or so by the painstaking researches of Békésy and others. Finally, to quote Hallowell Davis: "Conclusions drawn from the study of models are no better than the assumptions which enter into their construction," and while in the past theories and models have played a great part in helping us to some knowledge of the physiology of hearing the field of experimental research has now widened especially with the discovery of the Wever and Bray phenomenon and no new theory of the function of the inner ear can afford to ignore this work.

An ABC of War-time Law

By ROBERT S. W. POLLARD, solicitor. London: Hamish Hamilton (Law Books). 1940. Pp. 156. 2*s*. 6*d*.

Mr. Pollard has packed an amazing amount of useful information about our problems and duties under the defence legislation into 130 pages. This half-crown issue is described as the legal edition, to distinguish it from a popular edition published at a shilling from which the appendix of authorities and notes is omitted. The paragraphs are grouped under more than a hundred alphabetically arranged headings such as aliens, change of address, compulsory military service, evacuation and billeting, lighting restrictions, petrol rationing, photography, summer time, war damage and so on. The law is stated as at March 14 last. It changes rapidly. Part of the paragraph on the closing hours for shops, for instance, has been killed by recent revocation; but Mr. Pollard catches up even this change in his appendix of authorities. An ABC of enactments is not as easy to consult as an ABC of railway trains. This little book, however, is remarkably clear and good value for the money.

Indigenous Drugs of India

Their Scientific Cultivation and Manufacture. (2nd ed.) By J. C. GHOSH, B.Sc. Manc., principal, School of Chemical Technology, Calcutta. Calcutta: P. K. Ghosh. 1940. Pp. 243. 5*s*. 6*d*.

THIS little book embodies the spirit of original research into indigenous drugs in India, a realm which has already provided some of the mainstays of our pharmacopœia and which may still reveal unsuspected treasures. Recent pharmaceutical history is rich in the scientific adaptation to medicinal use of herbs to which native tradition has ascribed potent properties. The origin of such beliefs is not to be despised. In the East an ancient belief is well established from the teachings of Ayurveda that there is a herbal specific for the cure of each disease and this belief is supported by the fact that a large number of important remedies—quinine, strychnine, atropine, ephedrine, emetine and kurchicine to name but a few—are derived from the vegetable kingdom. So far there has been no regular cultivation of indigenous drugs in India though many familiar medicinal herbs grow wild in great abundance there, such as *Atropa belladonna*, strychnos, aconite, juniper, digitalis and squill. The native *Boerhaavia diffusa* has been found to have a valuable diuretic action in certain cases of dropsy. A lot of space is given to chaulmoogra oil and its uses in leprosy and here there is a disconcerting mixture of ancient Ayurvedic with modern scientific procedure. Thus cow's urine is recommended for internal as well as for external use in conjunction with chaulmoogra. An appendix includes sixty drugs not mentioned in the 1932 edition of the British Pharmacopœia.

THE LANCET

LONDON: SATURDAY, MAY 4, 1940

PSYCHIATRY AND THE SERVICES

THOSE responsible for recruiting cannot claim to be doing everything possible to ensure economy and efficiency in the forces while pegs that are recognisably square are being put into round holes in the ranks. Physically the recruit is being examined thoroughly enough, though we still hope to see routine radiography of the chest extended from the Navy, where it has now been adopted, to the other Services. But much more could be done to weed out the mentally unfit. It is said that psychiatric examination of each recruit would be unjustifiably costly in time and money and that there would still be psychiatric casualties among those who were given the benefit of the doubt or gave no indication of future instability at the time of recruitment. There can be no question, however, that simple psychiatric tests applied during the military and naval expansion of the last few years would have prevented the early breakdown with or without the stress of actual fighting of an appreciable number of mental defectives and psychopaths among young recruits and the occurrence of depressive reactions, often with an arteriosclerotic or other organic basis, among recalled veterans and reservists.

GRELINGER [1] has reviewed the first four hundred military psychiatric cases referred to the central unit of the psychiatric service in Holland since the beginning of mobilisation. Only a small proportion of the total number of psychiatric casualties reached the central unit; the majority were dealt with by psychiatrists attached to army units or the military hospitals, who eliminated gross psychotics and treated mild cases as outpatients. The material comprised men of 20–35 years of age, apart from some older non-commissioned officers. Nearly all were conscripts; this fact is important when the figures are compared with those of countries where conscription is not in force or is only an emergency measure. These men had already performed their prescribed period of military duty in peace-time satisfactorily and many mental defectives, psychopaths and neurotics had been eliminated during that period. The classification used by GRELINGER is that of the Leyden clinic. He found that few of the depressives could properly be placed under the heading manic-depressive; a certain number were hysterical depressions, but the majority were reactive depressions and these he classifies among the psychopathies. For this reason no less than 51 per cent. of the total were put down as psychopathies. The incidence of the different disorders changed from week to week. Schizophrenics were rarely met with after the first fortnight of service, probably because their behaviour quickly drew attention to them, and depressive reactions became less frequent as the arrangements for leave and other aspects of daily life became better organised. On the other hand psychopathic reactions, other than depressive, became more common the longer the conditions of stress continued. Mental defect was an exceedingly rare cause for breakdown owing, presumably, to the strict recruiting criteria. In almost every case a strong predisposition towards mental disorder was found, based sometimes on hereditary factors, sometimes on a chronic pathological process such as schizophrenia or encephalitis, and sometimes on factors in the patient's life history. This predisposition which is almost invariably present must play a large part in the decisions as to attributability which face the service psychiatrist. GRELINGER is not concerned with acute anxiety or hysterical reactions arising during actual fighting; in those cases attributability can only be justly settled by a close coöperation between the psychiatrist and the commanding officer, whose report on the stress to which a patient has been subjected should take the place of the social worker's report in civilian psychiatry. In few of the Dutch soldiers were the conditions of service either causative or contributory factors. When attributability has been proved the military authorities are responsible for treatment until the patient is fit to return to duty or be discharged to civil life. Of GRELINGER'S four hundred patients, 70 per cent. were found unfit for any form of army service, 22½ per cent. went back to full duty and 7½ per cent. were recommended for garrison duty only.

The experience in Holland suggests that a more systematic psychiatric service will be necessary if the number of psychiatric casualties is to be reduced to a minimum. Group intelligence tests and a record of the past work of each recruit, psychiatric observation during training, and coöperation between psychiatrists and the executive in making appointments would already have prevented much wastage of man-power in the Army, Navy and Air Force. In 1918 Prof. D. K. HENDERSON formulated proposals which he recently reiterated in Edinburgh.[2] He advocated the rigid exclusion of men showing mental deficiency or neuropathic and psychotic traits or giving a history or other evidence of head injury; the appointment of mental specialists to recruiting boards, with instructions to all recruiting medical officers to refer probable cases of mental defect to an expert; and the attendance of mental specialists at every large training centre. The Minister of Labour,[3] however, says it is impracticable to include a psychiatrist on every medical board, though he has drawn the attention of the boards to the importance of the examination of mental and nervous stability. Apart from the recruiting station the key-position for the service psychiatrist is in the barracks and

1. Grelinger, H. *Ned. Tijdschr. Geneesk.* Jan. 13, 1940, p. 150.

2. See *Lancet*, March 9, 1940, p. 472.
3. *Ibid*, April 27, 1940, p. 812.

training establishments where all unusual deviations from normal behaviour, repeated infringements of the rules and other difficulties would be referred to him. He would advise the executive as to the disposal of the personnel in suitable work and by outpatient treatment would avoid that unnecessary hospitalisation which saps morale and makes a return to duty far less likely. He would also help in selecting those hysterics and psychopaths who are at present invalided and returned to civil life but who could usefully be transferred to a labour corps for service at home.

SURGICAL RELIEF OF ANGINA

CORONARY disease kills many vigorous men in the prime of life when their other organs are still healthy. We can do little to prevent the development of coronary sclerosis for we do not know why it begins, but lately the surgeon has been trying his hand at relieving the established case. The operations performed are of two kinds. Some surgeons, notably BECK [1] and O'SHAUGHNESSY,[2] have tried to solve the problem directly by grafting operations which aim at supplementing the cardiac blood-supply; others following LERICHE [3] have been content to influence the syndrome indirectly by operations on the autonomic nervous system, or still more indirectly, following the work of the Boston school, by total thyroidectomy. STRIEDER, CLUTE and GRAYBIEL [4] feel that a direct attack on the cardiac ischæmia offers the best prospect, a view for which there is a good deal of experimental support, some of which, especially that of LEZIUS,[5] has not received the attention it deserves. They discuss the natural revascularisation which sometimes takes place if a fresh cardiac infarct becomes adherent to the parietal pericardium and they quote HOCHREIN'S [6] statement that pericarditis is not a complication of coronary thrombosis but a natural attempt at healing, and that its presence is to be welcomed rather than deplored. This opinion is based on the clinical data of patients with angina of effort who have been relieved of their pain after an attack of coronary thrombosis and on the pathological finding that the vascularity of the pericardial adhesions which may follow an infarct can be demonstrated after death. It is not contended that parietal revascularisation is the only type of compensation available in coronary disease—indeed, as the recent injection studies of SCHLESINGER [7] have demonstrated, the compensatory mechanism of intercoronary anastomosis has enormous potentialities provided the coronary obstruction is of slow onset—but it is the only type which can be encouraged or initiated by surgery.

It is not easy to weigh the immediate risk of operation against the prognosis without operation. No-one has yet published a large enough series of cases for operative mortality to be assessed and there is not yet enough evidence to form a sound prognosis of angina if operation is withheld. Certain provisional rules have been laid down for the selection of patients for operation. The first desideratum must be unequivocal evidence of coronary disease, and patients with obvious signs of cardiovascular degeneration in other organs like the brain or kidneys must be excluded. STRIEDER will only consider operation in patients suffering from angina of effort, but O'SHAUGHNESSY believes cardio-omentopexy to be indicated and relatively safe (1) in patients between 45 and 55 with a clear previous history who have an attack of coronary thrombosis and six months later continue to exhibit angina of effort or other symptoms of cardiac ischæmia; (2) in specific aortitis with angina provided the heart is not grossly enlarged; and (3) in hypertensive heart failure in early middle life. STRIEDER and his associates describe two patients submitted to cardio-omentopexy. Their first patient, a man of 44, had increasing angina of effort which had reached the point at which pain came on even if he crossed the street. He was operated on in May and by October was able to return to work, but in December he died after an operation for a diaphragmatic hernia. Sections at the site of the graft showed a rich capillary growth from it into the myocardium. The second patient had a similar history of increasing angina of effort and was having attacks even when resting in bed. He too was operated on in May and returned to work in October. His pain had not been abolished but his attacks were less frequent and less severe. From these cases STRIEDER concludes that the general principle of revascularisation is sound. BLALOCK [8] maintains that alcohol injection of the dorsal sympathetic chain is the safest procedure and he quotes LEVINE [9] as saying that removal of the normal thyroid gland for intractable heart disease is still in the experimental stage; it is a drastic procedure not to be undertaken lightly, for it also produces certain ill effects.

Lately RANEY [10] has summarised current views on the innervation of the coronary vessels in a way that should stimulate efforts to elucidate this key factor in the syndrome. Clinicians have no doubt been unduly hasty in discarding the classical view that in the coronary tree as elsewhere the sympathetic conveys vasoconstrictor impulses. Even some of the workers who attribute a vasodilator function to the sympathetic supply of the heart suggest that this action may be reversed when the coronary vessels are diseased, although no such reversal of function has ever been suggested in the parallel case of diseased vessels in an extremity. The effects of drugs give a good deal of indirect support to the existence of a coronary constrictor action on the part of the sympathetic nervous system. Adrenaline, the peripheral vasoconstrictor action of which is

1. Beck, C. S. *Ann. Surg.* 1935, **102**, 801.
2. O'Shaughnessy, L. *Lancet*, 1937, **1**, 1.
3. Leriche, R. and Fontaine R. Rapport 41ème Congrès français de chirurgie, 1932.
4. Strieder, J. W., Clute, H. M. and Graybiel, A. *New Engl. J. Med.* Jan. 11, 1940, p. 41.
5. Lezius, A. *Arch. klin. Chir.* 1937, **189**, 342.
6. Hochrein, M. Der Myocardinfarkt, Dresden, 1937, p. 138.
7. Schlesinger, M. J. *Amer. Heart J.* 1938, **15**, 528.
8. Blalock, A. *J. Amer. med. Ass.* Jan. 13, 1940, p. 97.
9. Levine, S. A., Eppinger, E. C. *Amer. Heart J.* 1935, **10**, 736.
10. Raney, R. R. *J. Amer. med. Ass.* 1939, **113**, 1619.

undisputed, will produce an attack in anyone liable to angina of effort, and if given during an attack will increase its severity. On the other hand nitrites, which relieve an attack presumably by relaxing coronary spasm, cause vasodilatation in peripheral vessels. So far the coronary vessels have never been observed during an attack of angina or even after the injection of adrenaline—recent progress in the deliberate surgery of the heart may soon remedy this gap in our knowledge—and therefore the vasospastic theory remains a theory. But RANEY regards it with such favour as to base on it a new neurosurgical approach to the problem. Long ago MELTZER [11] and ELLIOTT [12] established that postganglionic sympathetic denervation tended to increase the spastic tendency of smooth muscle while preganglionic section had the reverse effect. Thirty years later SMITHWICK, FREEMAN and WHITE [13] applied preganglionic denervation to the treatment of Raynaud's disease and in this condition ganglionectomy has been abandoned. RANEY has now applied this principle to the treatment of angina pectoris, claiming that it is more logical as well as safer to interrupt the vasoconstrictor efferent impulses than to concentrate on the ablation of sensory afferent paths. It should however be remembered that LERICHE has always claimed that the suppression of vasoconstrictor rather than sensory impulses is the important aim of operation for angina, and in his view ganglionectomy has succeeded in doing this. In RANEY'S operation the upper dorsal sympathetic ganglia are identified after a paravertebral resection of short segments of the third, fourth and fifth ribs. The rami communicantes between the second to the fifth intercostal nerves and the corresponding ganglia are cut, while the sympathetic chain itself is divided between the fifth and sixth ganglia. The operation is attended by little shock and the only immediate complication which RANEY fears—laceration of the pleura—will be without serious effect if the operation is done under positive-pressure anæsthesia. RANEY has operated on eleven patients without a death and some of his patients have been observed for nearly two years, during which time they have been relieved of a previously crippling angina. Although it should in theory be necessary to operate on both sides in order to interrupt all the vasoconstrictor paths to the heart, this relief has been attained by operating on the left side only.

PHYSIQUE OF LONDON'S SCHOOL-CHILDREN

As part of measures taken for the supervision of the nutritional condition of elementary school-children, and the selection of those in need of special investigation or special feeding, the London County Council made arrangements in 1935 for the measurement of the height and weight of all school-children twice a year. Since over 400,000 children attend the council's schools the amount of data thus accumulated with regard to their physique is enormous, and its analysis would clearly allow some interesting questions to be answered. For instance, to what degree do the children of the poorer boroughs differ in their measurements from those of the more fortunate areas, and how far has the undoubted improvement in physique progressed in the last quarter of a century? For this, and other purposes, the council directed that a statistical analysis should be made of a sample of some 100,000 records of the year 1938 and the results of this have now been issued by Sir Frederick Menzies.[1] The last investigation of this kind was made in 1905–12 and comparison of the two sets of data gives most instructive results. It shows that the London children of today when they enter school life are, on the average, rather more than 2 in. taller and 5 lb. heavier than their predecessors of 25–30 years ago. In other words, the average child of 5½ in 1938 was as tall as the average child of 6½ in 1905–12 and about 1½ lb. heavier. This advantage they maintain throughout their school career, so that taking the total range of ages, 5–14 years, the figures show that there has been an average increase of 2·2 in. in the height and 7·5 lb. in the weight of boys and 2·1 in. in the height and 8·1 lb. in the weight of girls. Expressed relatively the children at each age are today 4–5 per cent. taller and roughly 10–15 per cent. heavier than the children of 1905–12. Comparison of these figures with those collected ten years previously by the Board of Education for the whole country leads also to the conclusion that the London children are about 0·4 in. taller and about 3·3 lb. heavier than English elementary school-children as a whole (allowance being made for the probable improvement in the interval between the two inquiries). There is, it may be recalled, some evidence that this larger physique is also a characteristic of the adult Londoner.[2] The larger measurements of London children were also present in 1905–12 but not so distinctly, so that it is likely that the improvement during the last thirty years has been greater in London than in the rest of the country. Although, of course, all the figures relate to elementary school-children it is a little surprising that the differences between the children of the more fortunate and those of the poorer areas are quite small. For instance, the report gives a comparison between the children of Hampstead, Lewisham and Wandsworth and the children of Bermondsey, Bethnal Green, Finsbury, Shoreditch and Stepney. The former are certainly at each age taller than the latter, but both for boys and girls the average difference is only of the order of two-fifths to four-fifths of an inch. In weight the boys of the better circumstanced boroughs are also superior at each age but only by some ½–1 lb. With girls the differences are erratic but again mainly favour the more fortunate areas. Separate figures are given for each of the metropolitan boroughs. Statisticians will perhaps grieve that the presentation is confined to average figures. For at least the county as a whole the frequency distributions of the heights and weights observed at different ages would have been of much interest and value. It is, however, clear that improving physique and declining mortality-rates have been characteristics of the child population of London in the present century. Though much, no doubt, yet remains to be done we are steadily moving in the right direction.

11. Meltzer, S. J. and Meltzer, C. *Amer. J. Physiol.* 1903, **9**, 57.
12. Elliott, T. R. *Brit. med. J.* 1905, **2**, 126.
13. Smithwick, R. H., Freeman, N. E. and White, J. C. *Arch. Surg.* 1934, **29**, 795.

1. L.C.C. Report by the School Medical Officer on the average heights and weights of elementary school children in the county of London in 1938. London: P. S. King and Son. 1940. Pp. 22. 9*d*.
2. Physique of man in industry. Ind. Hlth. Res. Board Rep. No. 71. 1935.

ANNOTATIONS

PROS AND CONS OF LIQUID OXYGEN

IT has been an uphill fight to make oxygen available in adequate amount for every patient who really needs it. It is doubtful whether more than 10 per cent. of hospitals in this country are properly equipped for oxygen therapy, and indeed, owing to the efficiency of some of the commercial services, better conditions can often be secured in the patient's home than in hospital. There have been three major advances in oxygen therapy in recent years, all of which have widened its applications. The first is the discovery that breathing oxygen at increased pressure up to 60 per cent. of an atmosphere increases the oxygen and carbon-dioxide pressures in the tissues even in a normal animal [1] and that there is no risk of oxygen poisoning in man though pure oxygen is breathed continuously for several days.[2] In consequence many of the theoretical restrictions on oxygen therapy have been swept away, and it is false to assume that oxygen therapy can only be of value when there is some impediment to the passage of oxygen through the pulmonary alveoli. The second and third great advances were the popularisation of the oxygen tent and the development of the B.L.B. mask. Perhaps the greatest obstruction to the wider use of oxygen which now remains is the difficulty of transport. At a flow of 4 litres a minute, which is a minimum effective therapeutic dose with most types of breathing apparatus, a single patient will use over 5 cubic metres or about 200 cu. ft. of oxygen a day. This will usually come as compressed oxygen in cylinders, say two 100 cu. ft. cylinders, each of which weighs about a hundredweight. When the need for oxygen in high altitude flying was realised in the last war liquid oxygen was first used because of its lightness. Liquid oxygen can be carried in fairly light vacuum containers of double-walled metal construction. A litre of liquid oxygen liberates 800 litres of gas and weighs only about a kilogramme. Thus a day's supply for a patient would be represented by 7 kg. of liquid oxygen, to which must be added 8 kg. for the container, making a total of 15 kg. or little more than ¼ cwt. Nevertheless liquid oxygen fell out of use and none of the world's air forces is known to employ it now. This is not because liquid oxygen is dangerous to handle—the fear of burns is probably exaggerated—but because of difficulties of supply. Gaseous oxygen is a standard commercial article, liquid oxygen is not, for liquid oxygen cannot be stored for any length of time. Owing to the danger of explosion if its expansion is resisted the cap of a container for liquid oxygen is always made loose-fitting with a vent, and the oxygen evaporates at the rate of about 0·5 per cent. per hour. Moreover the apparatus necessary to convert the liquid oxygen into a form suitable for inhalation is itself relatively heavy and the final reduction in weight of the complete oxygen supply is not more than 50 per cent. In a hospital which is near a supply of liquid oxygen—and liquefaction of air and evaporation of the nitrogen to leave liquid oxygen is the usual method of manufacture of commercial oxygen—these disadvantages are less irksome and there is the great advantage of reduced porterage. The case for liquid oxygen for hospital purposes is persuasively argued in the *Presse médicale* by Cot and Genaud [3] who have devised a relatively simple and fool-proof installation for its employment on a large scale. In the same journal Reiser [4] gives pictures of an apparatus for inhalation of oxygen by the individual patient which is charged by means of liquid oxygen. Critics will note that the patient is shown inhaling from a funnel, that the apparatus is patented, and that no details are given of the mode of construction or reasons for believing it superior to the designs figured in most aviation text-books. All the same a good case has been made out for reconsidering the use of liquid oxygen for therapeutic purposes.

1. Campbell, A. and Poulton, E. P. Oxygen and Carbon Dioxide Therapy, London, 1934, p. 12.
2. Armstrong, H. G. Aviation Medicine, Baltimore, 1939, p. 315.
3. Cot and Genaud, *Pr. méd.* April 10, 1940, p. 361.

EGGS

EVERYONE from cook-dietitian to music-hall artist is interested in the egg, but to understand the hold it has over people's imaginations one has to go further afield than the kitchen or the political platform—possibly into the realms of mythology. On April 24 the nutrition panel of the food group of the Society of Chemical Industry looked critically at the egg.

Mr. Joseph Needham, Sc.D., pointed out that while the eggs of the octopus, the newt and the frog must to some extent look after their own nutrition, the bird's egg is a type of "closed-box" structure which requires many ingenious devices in order to survive. One is the excretion of nitrogen by the embryo as uric acid rather than as urea, because uric acid can be readily deposited as crystals. The egg as eaten by occidentals is, however, in an undeveloped stage and so must contain all the materials needed for the growth of the embryo. Therefore we should expect the egg to contain in smallest compass the best materials for growth when used as food, and experiment, so far as it has gone, bears out this expectation. Miss Ethel M. Cruickshank, Ph.D., showed what these food materials are. The four proteins of egg-white when combined contain all the essential amino-acids and are of high biological value. The same is true of the two yolk proteins. In addition the egg contains iron, calcium, phosphorus and copper among the inorganic elements essential to life, and vitamins A, B_1, the B_2 complex and D. With the exception of vitamin C, then, the egg has all the "protective" material essential to human existence. It is not possible by diet to alter the composition of the egg except as regards vitamins, but the better the diet of the hen the greater the vitamin content of the egg. Mr. S. K. Kon, D.Sc., spoke of the dietetic value of the egg and showed how its proteins supplement the proteins present in cereals. Perhaps this explains the instinctive attractions of the poached egg on toast. Mr. R. B. Haines, Ph.D., mentioned the efforts made in cold-storage research to preserve not only the nutritive value but also the palatability and culinary quality of eggs. A combination of gas and cold storage makes the egg available in good condition at times when it is but slowly produced in this country and therefore expensive. "Swollen" and "flabby" yolks in cold-storage eggs, he said, are due to loss of moisture, "water whites" and "sunken" and "sided" yolks to chemical changes and "whiskers" to the growth of fungus on the shell. Finally, Miss Mary Andross discussed the high culinary properties of the egg. No mention was made of the economics of the egg, and inquiry shows that its cost outweighs its culinary and dietetic advantages. According to Sir John Orr the hen needs three times as much food as the cow to produce human food. Her fruit is therefore a luxury article compared with milk and it is unpatriotic to demand eggs in war-time. Com-

4. Reiser, C. *Ibid*, p. 367.

pared with milk, eggs as a source of energy cost 3½ times as much; of protein twice; of calcium fourteen times; of phosphorus four times; of vitamin B_1 three times as much and of vitamin C infinitely more. Only in providing iron, vitamin A (in March) and vitamin D are eggs cheaper than milk. None the less eggs are a dear source of iron—three times as dear as the best calves' liver and six times as dear as black treacle. Cheese will give vitamin A at a twelfth of the cost in eggs and tinned salmon will provide vitamin D at a tenth! Can all the king's horses and all the king's men put together the reputation of the egg as an economical food?

CONTACT LENSES

THIS war may provide the experience that is still needed to define exactly the sphere of usefulness of the contact lens. It may also dispel the last prejudices against its general use. The most obvious, and the most obstinate, fear is the risk of breakage "in" the eye, although no instance has ever been reported and the accident is almost impossible. It has been shown at the Contact Lens Centre in Cavendish-square that if a contact lens is fitted over a Negacoll mould, which very closely reproduces the size and elasticity of the living eye, the lens after repeated blows from a metal hammer remains unbroken and unsplintered, although the mould itself is squashed and destroyed. An incident that is likely to become classic happened not long ago in Germany. A certain aviator, a patient of Professor Sattler of Königsberg, fell out of his aeroplane at a great height. The only parts of the body that were not shattered when he crashed were the contact lenses which he was wearing. These were lenses of thin Zeiss type and not the more robust variety manufactured in London. It is argued, too, that concussion or blast from the firing of guns—as on the quarter-deck of a ship of war, must set up vibrations capable of shattering the glass. This reasoning, however, would apply with even greater force to the glasses of wrist-watches and spectacles, yet there appears to be no evidence that these are particularly vulnerable. Contact lenses are equally immune because, being free of internal stresses or strains, no molecular disturbance of a vibratory character, however high its amplitude, can affect them.

So far no satisfactory spectacle-frame for wear under a civilian gas-mask has been designed. Even with service respirators steaming is a serious inconvenience. For every type of gas-mask the contact lens is free from objections. It may even have a protective value against injury to the eye by gas, although this is a matter on which there is some difference of opinion. It is important to note that, whereas the Zeiss ground glass covers only the cornea and a few millimetres of bulbar conjunctiva adjacent to it, the Hamblin-Dallos lens covers almost the whole anterior eye-ball. A priori, therefore, the latter should give effective protection against droplets. Some believe that protection extends also to gas vapour, while others maintain that, owing to the great solubility of mustard gas in tears, the gas in solution would diffuse beneath the lens and, evaporation being prevented, have greater destructive effect. Obviously this is a problem that can only be solved by experiment and it would have been solved long ago had it been easier to obtain samples of gas. There are rumours, however, that the necessary experiments are about to be made at last.

During its short existence nearly 500 patients have been fitted at the Contact Lens Centre. Although the cases include such conditions as conical cornea, gas erosions, corneal nebulæ, pemphigus and so on, as well as every variety of ametropia, a visual acuity of 6/9 or better has been obtained in 74 per cent., while the percentage of patients who wear the lenses with ease and comfort all day long is still higher. This is a result that can neither be equalled nor approached in any other country. To these figures must be added those obtained by pupils trained at the centre, who are now practising in the Dominions and elsewhere, as a recent paper by Flynn[1] of Sydney testifies. Among the patients treated at the centre, almost a score, not including civil air pilots, are members of the Navy, Army and Air Force, and one of these is aphakic. No adverse report has been received from any member of the Services, in spite of the difficult conditions with which some of them have had to contend. The disadvantages of spectacles in bad weather are well known and contrast unfavourably with the behaviour of the contact lens. On many counts it may be said that, in the contest of spectacles versus contact lenses, there is substantial backing for the contact lens.

ARTIFICIAL PNEUMOTHORAX IN CHEST INJURIES

THE extreme vascularity of the lung tissue makes it surprising that hæmorrhage from the lung, as a result of disease or injury, is not more often fatal. For this we must thank the relatively low pressure of the pulmonary circulation and the elasticity of the lung substance itself. If the attractive force of the pleural cavity is released the lung contracts centripetally and in so doing reduces the area of the lesion; the contraction also allows blood-vessels to close and become kinked, which further helps to arrest the hæmorrhage. The value of artificial pneumothorax for severe hæmoptysis in phthisis is admitted, but its employment in other types of hæmorrhage is not so well recognised. On another page Dr. Kretzschmar, as a result of experiences in the Spanish civil war, advocates this procedure in certain chest wounds where there is damage to the lung. Penetrating injuries almost always result in some degree of pneumothorax and hæmothorax and these complications exercise a controlling effect on the actual site of the bleeding. The retraction of lung reduces the extent of the damaged area, and the air and blood form a kind of pressure pad which resists the out-pouring. The site and size of the lesion determine whether the hæmorrhage stops or not, but in cases which reach treatment centres with signs that bleeding has not ceased the establishment of an artificial pneumothorax may be considered to ensure that pulmonary collapse is complete. The decision must largely depend on what treatment is accessible. The risk of infection of a hæmothorax is considerable and if full surgical assistance is to hand potentially infected wounds demand active attention rather than a conservative attitude, as Roberts, Alexander and Sellors lately pointed out in a symposium in the *Post-Graduate Medical Journal*. The possibility that the bleeding may be from vessels in the chest wall must also be borne in mind, and the presence of a fractured rib will sometimes suggest the source of the hæmorrhage and prevent confusion. To treat an actively bleeding intercostal or internal mammary artery with an artificial pneumothorax would be to court disaster; here only active surgery can help. If facilities for surgery are not readily available the value of artificial pneumothorax when the blood is definitely coming from the lung is more readily understood. The pleural cavity can be filled

1. Flynn, A. J. *Aust. N.Z. J. Surg.* January, 1940, p. 259.

with air in an attempt to improve the collapse and form a pad against the bleeding area. Later the blood can be removed by repeated aspirations, and Ranson [1] suggests that not more than 1000 c.cm. should be removed at a time. Air-replacement will prevent the intrapleural pressure from falling too low, which might lead to the reopening of torn blood-vessels. But after three or four days clot in the wound will probably have become sufficiently organised to withstand a pressure in the neighbourhood of 0–4 cm. of water. The maintenance of a full pneumothorax should not be encouraged after the bleeding has finally ceased. As long as infection does not supervene our efforts should then aim more at re-expansion of the lung, which may be hindered by fibrosis resulting from clot and damaged tissue actually in the lung substance.

NITROUS OXIDE WITHOUT ASPHYXIA

BEFORE nitrous oxide came to be used as an anæsthetic for long operations there was a clearer realisation of the part played in its administration by oxygen deprivation than there is today among anæsthetists who have grown up in the service of machines which give full scope for the delivery of oxygen along with the anæsthetic. Frederic Hewitt was perhaps foremost in pointing out that certain symptoms often seen during nitrous-oxide inhalation were nothing to do with that gas but were purely anoxæmic phenomena due to the curtailment of air or oxygen. Jactitation, violent stertor and the like were, he rightly held, to be regarded as warnings to remove the gas or to add air or oxygen in sufficient quantity to relieve the anoxæmia. It seems odd that it should be necessary at this late date to insist as does Murphy [2] on the undesirability of permitting anoxæmia with nitrous-oxide anæsthesia, and it is interesting that much has been written of late to show the evil, even the fatal effects, of permitting oxygen insufficiency during short and still more during long operations. We have commented [3] on the cerebral lesions that have been demonstrated post mortem when anoxæmia has been permitted and on the evidence adduced to show that these lesions are due not to any toxic action of nitrous oxide but purely to deprivation of the brain cells of sufficient oxygen. Recent investigations of maternal and fœtal blood at delivery [4] appear to show that there is some evidence of shortage of oxygen in the fœtal circulation when nitrous oxide has been administered to the mother. The evidence however is slight and the shortage slighter and there does not appear to be any good reason on this account to decry the use of gas and oxygen in obstetrics.

ALBERT CALMETTE

THE friends and pupils of Calmette have honoured their chief in a book [5] which tells the story of the man who applied the principles of Pasteur's work to the various problems of disease in men and animals in the tropics, and who sought to apply them to the conquest of tuberculosis in man. Calmette served as a medical "aide" in the French Navy in the East, in Africa, and on the French islands off the Newfoundland coast. Here he taught himself the methods of bacteriological research and on his return to France presented himself at the Pasteur Institute and enrolled himself as a worker under the Master. Within a few months he was selected by Pasteur to establish in Cochin China the first Pasteur laboratory outside France. There in addition to his administrative work he began his study of snake venoms. On his return to Paris six years later its importance was quickly recognised, and the various anti-venom institutes throughout the world are all the offspring of his work. He was barely thirty when he returned to Paris and in a few months he was appointed to organise an institute in Lille. At Lille he lived and worked for the next twenty-five years, including the four years of the German occupation. Under his energetic guidance the institute there soon became famous, especially among those interested in the scientific problems of industrial occupations and in sanitary reforms. Calmette gathered round him a body of devoted workers and friends, and while still an active director of the scientific work of the institute he became more and more wrapped up in his studies of tuberculosis, and on the methods by which immunisation could be established. At the end of the war he returned to the Pasteur Institute at Paris, and in collaboration with Guérin he elaborated the B.C.G. immunisation of infants. In England the tendency has been to regard this method as not sufficiently safe to be adopted, and the Ministry of Health has preferred to encourage other methods of prevention, but in France and other countries it has been extensively employed. No-one can read the account of his laborious studies and careful experimental work without realising the high standard of Calmette's scientific attainments. Whatever may be the final judgment as to its efficacy it is clear, now that the dust of conflict has subsided, that it represents a logical development of Pasteur's principles, that it is an advance on any previous work, and that it must be the foundation for all future work in this special sphere.

1. Ranson, *J. thorac. Surg.* April, 1940, p. 278.
2. Murphy, F. J. *Surg. Gynec. Obstet.* April, 1940, p. 741.
3. *Lancet*, 1939, **2**, 1180.
4. Smith, C. A. *Surg. Gynec. Obstet.* April, 1940, p. 787.
5. Albert Calmette. *Sa vie, son œuvre scientifique.* By Noël Bernard and Léopold Nègre. Paris: Masson et Cie. Pp. 272. $1.15.

SENDING REPRINTS ABROAD

ANYONE thinking of posting reprints of scientific articles to foreign countries should first take note of the War Office Censor's regulations. By these no "newspaper, book or other printed manuscript or typescript publication, or cuttings or portions from any of the above" may be sent by post to countries on the reserved list without special permission from the Deputy Chief Censor. There is no restriction, other than ordinary postal censorship, on posting to places within the British Empire, in allied countries, or in the United States or South America, and trade circulars and catalogues and some other "commercial papers" can be sent without restriction. The postal services to Denmark, Estonia, Finland, Greenland, Latvia, Lithuania, Norway and Sweden are temporarily suspended. The main countries on the reserved list are: Belgium, Bulgaria, China, Greece, Holland, Hungary, Italy, Japan, Portugal, Rumania, Russia, Spain, Switzerland, Turkey and Jugoslavia. Doubts that the local Post-Office officials cannot resolve should be referred to the Deputy Chief Censor (Permit Branch), Aintree, Liverpool, 9.

We regret to announce the death of Sir GILBERT BARLING, emeritus professor of surgery in the University of Birmingham, on April 27, three days before his 85th birthday.

THE LANCET is shortly to state the case for Family Allowances from the doctor's point of view in a 32-page broadside, which will be on sale at all booksellers, price 3*d*.

PREVENTION AND TREATMENT OF WOUND INFECTION

IV

ACTION OF ANTISEPTICS ON WOUNDS

BY LAWRENCE P. GARROD, M.D. Camb., F.R.C.P.
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(*Concluded from p.* 802)

SELECTIVE ACTION

It is well recognised that susceptibility to the action of antiseptics in general differs with bacterial species; that spore-forming bacteria and tubercle bacilli, for example, are exceptionally resistant, owing to their impenetrability. Other bacteria possessing considerable resistance to many kinds of antiseptic and for no such obvious reason are *Ps. pyocyanea* and *Streptococcus fæcalis*; the gonococcus, however, is easily killed. The antiseptic, on the other hand, may exhibit unequal degrees of activity, peculiar to itself, against different types of micro-organisms. These inequalities may be very noticeable; of two micro-organisms more or less equal in their susceptibility to other antiseptics, one may survive exposure to a concentration a hundred or even a thousand or more times greater than that required to kill the other. These extreme inequalities of effect are naturally only seen in antiseptics such as dyes, which act in high dilution; their effect on certain bacteria is evidently the result of some peculiar affinity. A substance such as phenol, on the other hand, is a general protoplasmic poison and acts almost equally on most types of non-sporing micro-organisms. Although striking degrees of selective action are chiefly seen among antiseptics of high efficiency—the rapiers rather than the bludgeons of this class of weapon—it should not be taken for granted that any antiseptic less crude and simple than phenol will act as well on one micro-organism as it may perhaps be known to on another. It is one of the defects of the Rideal-Walker test that its results refer only to the killing of typhoid bacilli; a similar test performed with one of the bacteria infecting wounds may yield a different result. Some essential oils, for instance, give a Rideal-Walker coefficient 5–10 times higher than that obtained when *Staph. aureus* is substituted as the test organism, and similar wide differences in action are observed with substances no more complex or potent than soaps.

Staphylococci are intensely susceptible to the violet dyes; streptococci are a little less so; most gram-negative bacteria are highly resistant to these dyes. The acridine compounds, on the other hand, exert their most powerful action on hæmolytic streptococci, staphylococci being somewhat less susceptible to them. The pneumococcus is peculiarly susceptible to Optochin. *Ps. pyocyanea*, which flourishes in the presence of many antiseptics, succumbs to dilutions of acetic acid which other bacteria can resist, and a 1 per cent. solution has been used successfully for dressing wounds infected with this organism. These are striking examples of selective action which can be turned to some practical account. This, however, can as a rule only be done in the case of an established infection in which the responsible organism has been identified, and the view to be put forward in this paper is that in this sphere of therapeutics effective treatment is much less feasible than prevention.

HABITUATION

Exposure of bacteria for more than a day or two to any of a great variety of noxious agents in concentrations not wholly lethal is followed by the multiplication only of the more resistant individuals and consequently by an increase in their capacity to withstand the treatment. This change is specific and does not involve any diminution in susceptibility to other poisons. It would therefore be advisable on this ground, if on no other, to discontinue the treatment of a wound with any antiseptic which did not achieve its effect after several days and either to substitute another or to rely on entirely different methods of treatment.

FORM OF APPLICATION

It is not within the scope of this paper to discuss surgical technique; given that the introduction of a certain substance into a wound is calculated to have beneficial effects, it is for others to decide how this should be done, and in particular how the substance should be kept there for an adequate length of time. The form in which the substance should be applied is another matter, and important theoretical as well as purely practical considerations enter into it. An example will illustrate this. Solutions of phenol in water are highly toxic in adequate germicidal strength; among other attempts to obviate this drawback recourse has been had to other solvents, including oils. A 5 per cent. solution of phenol in olive oil is bland and non-irritating and has long been used as an antiseptic, but is inert. It would indeed be surprising if toxicity for tissues were lost and that for bacteria retained, and the fact is that olive oil in which phenol is dissolved does not part with it when brought into contact with water. To dissolve or to emulsify an antiseptic in oil is usually to prevent its diffusion, except in minute traces, into a watery medium and therefore to deprive it of effect. The acriflavine emulsion of the B.P.C. is another example; this elaborate preparation is inert, although a more simple and less stable water-in-oil emulsion can be prepared from which enough diffusion takes place to exert an antiseptic action. Incorporation in a semi-solid oily basis in the form of bipp deprives iodoform of what little power it possesses to restrain bacterial growth, and most ointments possess little antiseptic power, although if made up with a "vanishing cream" base they become more effective. Generally speaking, the use of any solvent other than water, whether to secure greater solubility, to diminish toxicity, or in some way to facilitate application, entails loss of antiseptic power. This is true of glycerin and, for certain purposes at least, of spirit as a solvent; the sole advantage of this practice is to ensure rapid drying on the skin. The proper vehicle for an antiseptic to be applied to a wound is water, and the solution should if possible be rendered isotonic.

PROPHYLAXIS

It seems desirable that anyone in the habit of using antiseptics should ask himself whether or not he believes that their application to a fresh wound can prevent infection which otherwise would develop. It has been the fashion for many years to decry antiseptics, and some surgeons have little belief in them; it is indeed difficult to understand why, under such sceptical direction, they are used so freely. The explanation probably is that long-established ritual engenders a compulsion in its own favour in which reason plays no part. If the possibility of prophylactic treatment of wounds is reconsidered impartially, it must surely be admitted that prophylaxis is a very different thing from the treatment of an established

infection of a wound and should be much easier to achieve. The number of bacteria to be destroyed is comparatively small, and they are in the wound cavity, more or less accessible to application from without. Both from observations on experimental wounds and by analogy with the lag period in cultures it can safely be concluded that proliferation of the bacteria and invasion of the tissues will not occur for two hours or more. During this period an antiseptic has a task to achieve which is simplicity itself compared with that which may face it on the following day, about which no more need be said than that it involves a depth of penetration of the tissues of which no known antiseptic is capable even to reach the now enormous numbers of invading bacteria. If antiseptics cannot at least in some circumstances prevent infection of a wound, or greatly diminish its severity, they have no place in the treatment of wounds at all.

The prevention of infection does not necessarily require that all the bacteria contaminating a wound shall be destroyed. It has been amply demonstrated by experiment that there is a minimal infecting dose, varying with the degree of virulence of the micro-organism at the time and with the resistance of the host, expressible in terms of bacterial numbers; a number less than this can be dealt with by the body. Even to reduce the bacterial population of a fresh wound without altogether eliminating it can therefore be of service. What may be much more important is the fact that exposure to no more than sublethal concentrations of certain antiseptics for only a few minutes greatly reduces bacterial virulence; this effect is known to be produced by acriflavine on streptococci.

There are clearly two policies either of which may be adopted in the prophylactic treatment of wounds. First, the effect on tissues in the wound may be disregarded for the sake of securing complete disinfection or as near an approach to this as possible. An extreme example of this is burning out the whole area of an infected needle-prick with pure phenol, or the application of a 5 per cent. solution of, or even pure, phenol to larger wounds, as practised in France in the early part of the Great War. Methods so drastic have the drawback of leaving necrotic tissue liable to further infection and in any case slow to heal. There is more to be said in favour of using antiseptics less grossly toxic but rapid and powerful in their action on bacteria; among these the less toxic coal-tar derivatives, such as cyllin, izal, and dettol, deserve serious consideration. Used in adequate strength they kill bacteria in a few minutes even in mixtures containing blood, and they cause no gross damage to tissues. Little information is available about their action on the individual cells of the body; but, if it is assumed, as is indeed probable, that they kill or damage such leucocytes as may initially be in the wound, these are in any case few and easily replaced, and it is clear from clinical experience that there is no really disastrous effect on the cells of skin, connective tissue, or muscle. A wound involving only such structures may thus be treated in this way without fear of harm. An important advantage in using antiseptics of this class is that their action is fairly rapid; irrigation of a wound for ten minutes will achieve an effect not far short of that to be obtained in a much longer period. This saving of time or, to put it in another way, the absence of any need for somehow securing prolonged contact with the wound may make all the difference between a practicable method and one which in busy times cannot be properly applied. No other class of antiseptic combines rapidity of effect with adequate activity in the presence of blood. Dyes and acridine compounds act in blood, but slowly; the halogens act quickly, but not in blood; and mercury compounds suffer some disadvantage on both of these scores. In this category of treatment of wounds, which accepts microscopic cell damage for the sake of more efficient disinfection, must be placed the use of such dyes as brilliant-green and crystal violet. If, as their staining properties suggest, these dyes persist for some time at the site of application, this property may compensate for their slower action.

The alternative policy is to insist that adequate disinfectant power shall be combined with minimal toxicity to tissues, so that if possible no damage shall be done, even to specialised and perhaps highly susceptible cells. There is no answer to this demand except in the acridine compounds. No other class of antiseptics has been shown, either by application to tissue cultures or by the study of effect on leucocytes, to be more toxic to bacteria than to cells. These compounds also have an exceptional claim in that they have been shown in carefully regulated experiments to be able consistently to prevent infection when experimental wounds in animals have been inoculated with virulent bacteria. This, in a simple skin cut, is achieved by a single application, and it may be that enough of the solution is absorbed by the surrounding tissues to ensure prolonged action. That prolonged action is necessary to secure adequate effect is the main drawback of these substances, and in ideal treatment the solution should remain in the wound cavity for an hour or more. To apply a dressing or to pack with gauze soaked in it is not ideal, because the affinity of cotton for dyes leads to the retention of the antiseptic in the substance of the dressing. Whether, in fact, tissue absorption ensures enough persistent effect to remove the need for prolonged initial treatment is a question worthy of study. Solutions of acridine compounds can be injected interstitially without ill effect, and thorough infiltration by this means of the tissues round a small but dangerously infected wound is good treatment. It is particularly indicated for punctured wounds sustained accidentally during septic operations, the track of which is narrow, inaccessible to external applications, and perhaps untraceable.

It goes without saying that extensive, deep, and irregular wounds, possibly containing foreign bodies which cannot even be located until later, present a very different problem from the clean standard cut of animal experiments on antiseptics. Where an antiseptic cannot reach it cannot act, and excision is the only measure which will deal effectively with such a condition. The opinions expressed here involve no suggestion that antiseptics can take the place of plainly indicated surgical measures; they refer only to cases in which the surfaces of a recent wound are accessible to an external application. This is not to say that antiseptic treatment is useless even in wounds of which some parts cannot be reached; when excision has perforce to be delayed, such treatment should be used for what it may be worth.

CURATIVE TREATMENT

Antiseptics are applied perhaps even more thoughtlessly to infected wounds than to fresh ones. If we do think what their effect is calculated to be, this must clearly depend on two factors: the depth from the surface which the bacteria have reached and the capacity of the antiseptic to follow them—i.e., to penetrate tissue. Studies of the penetration of tissue by antiseptics are few and incomplete, but such as there have been seem to show that a fraction of a millimetre is the limit for most of them. It is

consequently foolish to expect any effect on a spreading cellulitis, on suppuration spreading along fascial planes and between muscle bundles, or on gas gangrene. Just as prophylaxis is the sphere of antiseptics, so is the control of actively spreading infection the sphere of systemic chemotherapy with sulphonamide compounds. There is, however, another class of infected wound, that from which no active spread is taking place, but in which infection is delaying the process of healing; the surface may be formed either by superficial sloughs or by granulation tissue exuding pus. Antiseptic applications to such wounds have other advantageous effects than the possible killing of bacteria in them; they may prevent the access of further infection, deodorise the wound, and mechanically cleanse it. The process of mechanical cleansing is of most advantage in wounds containing sloughs and is well served by solutions containing chlorine or liberating oxygen, both of which tend to disintegrate and detach necrotic material. The shedding of sloughs may also be accelerated by stimulating the exudation of fluid; mere irritants can have this effect, and the good results claimed for antiseptics which really have little power of killing bacteria may well be due to it. Much more profuse fluid exudation can deliberately be produced by applying hypertonic solutions of salts; sodium sulphate is said to be the most active. This measure may also be of value in the acute inflammatory œdema of cellulitis by reducing the tension and pain and by improving circulation and drainage; it is not antiseptic treatment in the ordinary sense.

The depth to which infection extends in different types of non-spreading infection of wounds is imperfectly understood and well worthy of study. Our incomplete knowledge both on this point and of the capacity of various antiseptics for penetrating different types of tissue makes it difficult to decide whether any substantial part of a favourable effect can be due to an influence on bacteria beneath the surface of the wound. It is much more likely that in granulating and suppurating wounds the observed effects—e.g., the disappearance of *Ps. pyocyanea* after treatment with acetic acid—are due to the destruction of bacteria which are simply multiplying in the discharge from the wound and are not in the tissues at all. A serous or purulent exudate which collects in a cavity forms an admirable culture medium for some types of bacteria, and it is doubtless useful to get rid of them, but this does not imply the sterilisation of tissue. Whatever antiseptic treatment is adopted, it should for several reasons be strictly limited in duration; to continue day after day and even week after week with the same application is futile. The killing of bacteria is something final, which is either achieved or not, and therefore unlike most purposes for which chemicals are introduced into the body. If it is not achieved within a day or two, there is no reason why it ever should be and indeed one very good reason why it should not—the fact that exposure to sublethal concentrations of an antiseptic produces in bacteria an increased resistance to it. Long-continued application is also contra-indicated because of its effect on the growth of reparative tissue; however slight toxicity may be in the sense of an immediate effect on the survival and function of cells, it is too much to expect the exceptional effort of repair to proceed unimpeded by the constant presence of any foreign substance of this kind. Clinical experience suggests that continuous irrigation with a weak hypochlorite solution by the Carrel-Dakin method may with advantage be continued rather longer than the application of other kinds of antiseptic, especially in dealing with large and dirty wounds. It is also reasonable, if one antiseptic fails, to try another for an adequate but limited period.

To take this somewhat sceptical view of the antiseptic treatment of infection in wounds is not to deny that such treatment can be highly effective in other situations. The response of thrush to the application of violet dyes is almost miraculous, presumably because this infection is exceedingly superficial and therefore more accessible; some superficial skin conditions are also amenable to such treatment. The depth to which infection extends must be considered the paramount factor in determining whether surface applications can control it.

TREATMENT OF WAR WOUNDS

The undeserved contempt for antiseptics which is now so common is largely based on beliefs which arose during the Great War, when the almost universal judgment on experience with casualties in France was that antiseptics had failed. There are particular reasons for this failure which forbid the application of this judgment to the treatment of wounds as a whole. Perhaps the chief of these is that treatment was so often necessarily delayed. It cannot be emphasised too strongly that the prevention of infection of wounds is an entirely different thing from its treatment after infection is established, and prevention in this sense is only possible for an hour or two after the infliction of a wound. Invasion of the tissues then begins, and disinfection of the wound cavity is of no avail. Much of the use of antiseptics in France was consequently not prophylactic but the treatment of an infection already developing or even fully developed, a proceeding which would not be expected often to succeed. Another cause of failure is to be found in the special characteristics of the gunshot wound, which render it an unpromising field for antiseptic treatment. It consists too often of a long narrow track through deep muscle or viscera, at the end of which may be a shell fragment and a piece of dirty clothing. The deeper parts of such a wound are inaccessible, and, if general conclusions about the value of antiseptics in prophylaxis are to be drawn from war experience, the study should include only the more open type of wound capable of thorough irrigation. These two factors will always counteract the success of antisepsis in military surgery, and they must be accorded the major share in responsibility for the failure of such treatment in France. If anything more were needed to explain it, some of the methods used furnish the answer. Strong phenol, strong cresol pastes, and formalin were freely used in the early part of the war, and it was not until the introduction of eusol or of Dakin's solution and of the flavines that any method came into general use which was at all likely to do more good than harm.

If military casualties have shortly to be treated in this country, it must be borne in mind that, in accordance with the terms of a War Office order issued last November, they will have received prophylactic doses of sulphanilamide or of sulphapyridine. It is much to be hoped, and indeed to be expected, that the incidence of septic wounds will be materially less in this war than in the last, but the allocation of credit for this, as between systemic chemotherapy, surgery, and possibly preventive antisepsis, is likely to be difficult.

SCOPE FOR FURTHER OBSERVATIONS

Antisepsis is one of the most neglected subjects in medicine. Tradition has a firm hold on it; when that hold is relaxed, it is too often replaced by that of fashion. If antiseptics can in any circumstances

do what their name implies, it is worth while to find out more about them and to decide which of the almost innumerable procedures advocated for any single purpose is the best. Haphazard clinical trial will not serve; the average clinical material is too varied to afford a proper test of prophylactic action, unless on a very large scale or in such a place as a works surgery, where wounds although anatomically heterogeneous are contaminated with the same sort of material and therefore probably with the same kinds of bacteria. It is besides more satisfactory to understand the process at work when experimenting in the clinical field, if only because details of technique will depend on such an understanding. Some of the directions in which elementary and fundamental knowledge needs to be amplified have already been indicated. There is no generally accepted method of testing the disinfectant power of an antiseptic to be used in wounds or of assessing the degree of damage which it will cause in exposed tissues. The general adoption of such methods and the acquisition through them of comparable data for all antiseptics in common use would clarify what is now a confused position. Distinct from immediate damage is the effect of prolonged or repeated application on the rate of healing; this is readily susceptible to experimental study. Other subjects about which knowledge is imperfect or lacking are the extent to which certain antiseptics are absorbed by wound surfaces so that their action persists after application has ceased, the depth to which they can penetrate different tissues, and the depth to which they need penetrate to reach bacteria causing persistent infection. The method of prophylactic treatment of wounds in the experimental animal, which has so far awarded all the prizes to acridine compounds, needs to be more widely applied; the position of other dyes, of the organic mercury compounds, and of emulsified antiseptics derived from coal-tar would be clearer if data obtained by this method were available for them. Finally, any study of disinfectant action, whether in vitro or in vivo, can usefully be amplified by embracing bacteria other than the pyogenic cocci; the prevention of gas gangrene or of tetanus by antiseptic methods may seem too much to expect, but there are some indications of its feasibility in gas gangrene.

Only a few years ago it was thought impossible to kill bacteria within the body with chemicals and likely always to remain so. This belief was shaken by the discovery of a urinary antiseptic which really worked, and it was shattered by the introduction of Prontosil, with all its manifold consequences. Are we still to deny the possibility of killing bacteria which are merely lying on a body surface?

SPECIAL ARTICLES

MEDICINE IN ITS OWN RIGHT

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Several blue prints for the future of medical practice have lately been presented for our attention. I do not propose to add another but to examine our resources; for the most ingenious and admirable blue print is but a dream until it finds its bricks and mortar, its builders, and a site that is something more than shifting sands.

SOCIAL ORGANISATION

Our resources for the future of medicine are uncertain. On the material side poverty will surely be our portion; on the human side there are widespread lack of understanding of what is happening, bewilderment about what we should aim at, and a disturbing unreadiness to put our medical house in order. Our problem is only an aspect of the world's problem. We are watching a transforming of the whole world, affecting not only economics and politics but also cultural activities, institutions and even religion. Man needs the sense of community and the reality of social discipline and social organisation. We have been made only too aware of the totalitarian answer, which, for all its cruel and ruthless over-simplification of the problem, is an attempt to supply those necessities. It is ill conceived just because it deliberately rejects individual responsibility and freedom.

These two things are an integral part of our own country's tradition and history. Far from disintegrating our unity, they have strengthened it, and on their foundation English culture has been built. But in spite of this inheritance there is with us also a danger of allowing the claim of the State over and against the person even in spheres where the State cannot offer more than a rough, clumsy and incomplete solution. The idea that the cultural or spiritual life of society can be ruled or directed by politics is altogether wrong, and we recognise it as such when we look at modern Germany. But we too find it difficult to reconcile the needs of the community with freedom and individual responsibility.

DOCTOR AND PATIENT

Where are we now in medicine and the organisation of medical practice, and what are our fundamental necessities? The community needs the best medical knowledge and service that it can get; the sense of community brings the urge to look after our sick brethren, and any decent view of society gives them the right to this care, whether they can afford it or not. It is of the very nature of medical practice, however, that in the final issue these needs can only be met by a personal relationship between a properly trained and devoted doctor and a sick patient. The community is right to insist that these needs are so important to itself that the response cannot be left to casual and haphazard effort; but, by the very nature of medical practice, the community cannot do more than provide conditions in which this necessary personal relationship may flourish. All this has its obvious impacts, for community and medical body alike, on medical education and the maintenance of the true medical tradition, as well as on actual medical practice.

The problem, then, is the proper organisation of the effort to ensure that all the sick shall be properly cared for; but the very breath of life of that organisation can only be the vital personal relationship of doctor to patient. The State, the municipality, the voluntary hospital committee, and the administrator can only help to provide the right sphere in which a doctor can work *through* the State or committee *for* his sick fellow man. At the moment both parties do not understand fully this twofold nature of the problem. The medical profession has a long way to go before it accepts wholely and disinterestedly the community's need, and it hardly yet realises that, if it will not put its house in order, some sort of rough

and ready order will be imposed from outside, probably in a way it does not like. The community has a long way to go before it understands and accepts the hard fact that it can only build successfully on the right personal relationship which is the foundation of medical practice. Except the house be built on that rock, it cannot stand, and they labour in vain that build it.

MEDICAL ETHOS

Once upon a time the Church was the central unifying point of the community. When it ceased to be so, politics hardly dared claim and could never for long enforce any rule over that particular "cultural" spiritual body. It lived on and did its proper work *in its own right*, guarding its own true ethos and tradition. Again, when secular culture broke loose from the Church, it too lived in its own right, a real "order of letters," having like the Church its own internal discipline, self-conscious, rigorous and self-imposed. Our medical heritage is likewise that of an order in our own right, with an ethos and discipline natural to the medical body. That heritage is in danger from without and within. The mass of the community is educated enough to make demands which can only be fulfilled by a devoted and highly trained medical profession, but it is ill prepared to understand the essential basis of medicine and medical practice. Among ourselves there is a sensible deterioration in our sense of corporateness and in our interior discipline; hence to many the idea of a living medical ethos appears sentimental, unnecessary or even snobbish.

FUTURE OF MEDICAL PRACTICE

It may be that the future of medical practice is not wholly under our control. Nevertheless we must accept with clear vision and disinterestedness our peculiar task; we must find a deep social sense and an intense consciousness of our medical ethos. So we must recover the corporate sense of a group doing a unique work for the community, a cultural body with an inheritance and interior discipline to keep intact, and with the right to self-determination and self-direction. So also we must fight to the death every invasion of the soul of our order by external and inappropriate powers, even though those powers may be inspired by the desire to build something better for the community. It is certain that both the lack of a sense of community (so often due to vested interest) and external control (in a sphere in which it is not valid) will bring disaster to medicine and rob the community of its best medical care.

We do not need totally new and revolutionary action, but to build on our true medical tradition, to rethink it and reinterpet it for the needs of our own day and generation. Then many of the problems which trouble us will be solved readily enough. Take, for example, the hardly concealed exasperations and antagonisms which beset discussions about voluntary and municipal (or State) hospitals. No doubt the municipal idealist feels that the voluntary system is too narrow and lacks the sense of the unity of the whole of society; whereas the voluntary idealist feels that the municipal hospitals are overshadowed by political power, and that external political control can only harm medicine. Meanwhile the general practitioner is largely outside the discussion, anxious for hospital beds for his patients who cannot be properly treated at home and taking them thankfully where he can find them.

BASIS OF ACTION

But what if there were a deep sense of medical community among *all* doctors, with an intense consciousness of the medical ethos, accepted as the only basis of good work for the community and professional happiness for the doctor? It is on that level, and that level only, that all medical practitioners, general, "voluntary," "municipal" and administrators, can unite for common ends and common functions. In medicine as in economics laisser faire is no more, and with it inevitably go many vested interests. Now, in the flood of war many things will be swept away; we had better make up our minds therefore to hold loosely to all non-essentials, clinging to what cannot be shaken—our true nature as servants of medicine for the sake of our fellows. In that tradition the midpoint of all medical organisation and practice is the doctor face to face with the patient, in home, hospital or clinic. Both general practitioner and hospital doctor, then, are "first among equals" in their own particular milieu, and in this highly complex world they both need the help of one another and of the medical organiser. The consultant has his place in both hospital and home practice, and often as a teacher he has a key position in guarding and maintaining the integrity of the medical tradition among young and impressionable initiates. None of us, however, can feel that we have the full resources of a common mind and spirit to meet either the needs of the community or the threat to our freedom. Today these are no mere academic problems; necessity presses hard for action. All of us, general practitioners, consultants, voluntary or municipal hospital doctors, State and municipal medical administrators, must work together to achieve a unification over the whole field of medical culture and medical usefulness. On the foundations of social responsibility and the medical ethos we, and only we, can construct an ordering of medical work which will allow for diversity, individual responsibility and freedom. Against this broad and unified background we must review honestly the faults and virtues of our present system—panel and private practice, hospital organisations of all types, projects of regionalisation, medical education—pre- and post-graduate—and act accordingly. Moreover, the dynamic of right action is to be found in the living consciousness of our function as a medical group within the whole community, which must be accepted by each individual and each subgroup within our medical fraternity and by the community as a whole.

It is true that the aims of the medical body may not be achieved for many generations; hence our medical tradition is always (what Burke said of society in general) that of "a partnership between those who are living, those who are dead, and those who are yet to be born." Each generation, however, has its particular task of trying to make one ideal and practice; and the community always needs some individuals who, aware of what is happening and fortified with the knowledge of first principles, can act as midwives for the idea, when its time comes.

Let, then, *all* doctors who care for the proper development of medical practice get together now for counsel and action. In every town and county, groups embracing diverse interests could surely come together on the agreed basis that they are all concerned in the integration of the medical care of the community with the inescapable requirements of the true medical ethos. Let them use this necessity for integration as a yard-stick whereby to judge any differences which may emerge between them; and let the groups in various places share the results of their findings one with another, so that gradually a common mind may grow throughout the whole medical profession. Let them thus pass on from analysis to

action appropriate to their own local problems, and to agreement on wider action where necessary. So our medical community will begin to play its proper and unique rôle. At this point there will almost certainly arise the inevitable and perhaps painful choice between loyalty to the medical body in its proper cultural and communal activities, and loyalty to our lay friends, political or "voluntary," who, for all their eagerness to help, can only by the nature of things have limited functions in the development of medical work. For these can only act as members of the general community, soliciting our free coöperation but unable to compel it. This is one of the hard facts about medical practice which both doctors and laymen have to learn and accept.

MEDICINE AND THE LAW

Marriage Annulled for Fits of Insanity

LAST week, in Smith *v.* Smith, the Divorce Court heard the first petition under section 7 (1) (*b*) of the Herbert Act. There have been plenty of suits for divorce on the ground that the respondent is "incurably of unsound mind" and has been continuously "under care and treatment" for the last five years. Section 7 does not deal with divorce whereby a valid marriage is dissolved, but with annulment, the marriage being declared voidable on certain express grounds such as the respondent's wilful refusal to consummate, or his or her existing infection with venereal disease in a communicable form, or the wife's existing and undisclosed pregnancy by someone other than her husband. To these other novel statutory grounds of voidability section 7 (1) (*b*) adds the ground that husband or wife "was, at the time of the marriage, of unsound mind or a mental defective . . . or subject to recurrent fits of insanity or epilepsy." In Smith *v.* Smith the husband alleged that the wife had been, at the date of the marriage, subject to recurrent fits of insanity. A proviso to the section requires the petitioner to satisfy the court in such a case on three points—that at the time of the marriage he was ignorant of the facts alleged, that he took proceedings within a year of the marriage, and that there had been no marital intercourse since his discovery of the existence of the ground relied upon. Sir Boyd Merriman found that these points had been established and that there was sufficient evidence to prove that the wife was, at the date of the marriage "subject to recurrent fits of insanity," which was, he said, a different thing from having to prove that she was suffering from a fit of insanity at the time. He granted the husband a decree nisi of nullity.

Noting that the statute in the same sentence uses the two phrases "unsound mind" and "insanity," Sir Boyd Merriman referred for guidance to Murray's Dictionary where he found nothing to distinguish the one from the other. Nor did the dictionary create any difficulty over the word "fits," which was easily interpreted as meaning a paroxysm or a sudden, severe but transitory attack.

Medical Witness's Fee

On the same day the Divorce Court had occasion to discuss the fee to which a medical witness was entitled. The medical superintendent of an asylum had given evidence in an undefended suit where incurable insanity was alleged. Before leaving the box, he was asked by counsel for the petitioner whether his fee for attending the court was 30 guineas. He answered in the affirmative, adding that he had been paid that sum in a similar case previously. Sir Boyd Merriman said he would be surprised to learn that other medical superintendents charged so high a fee. Disclaiming any intention to prescribe the appropriate amount, he observed that the court officials who deal with taxation would be able to assess the proper figure. What, one wonders, is the correct fee? And is standardisation satisfactory? No two cases are alike. Nor are all witnesses equal in value or in professional qualifications or in the care they devote to the preparation of their evidence. It will be interesting to learn the ideal sum evolved by the taxing master.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

GLASGOW UNIVERSITY

Sir Hector Hetherington, principal of Glasgow University, lately discussed the effects of war conditions on university life and work at a meeting of the university general council. The outbreak of war had an immediate effect for many students and members of the staff had been mobilised. A great many graduates as well as students had at once offered themselves for training in the officer-producing units. Gradually, however, with the coming into force of the Military Service Act, regular machinery for calling up students had been established and trained students were being directed into units where they were most needed. Conditions had quickly become stabilised and though next season was likely to be more difficult he was thankful that they had had this period of readjustment. The standard of work among students in the current year was higher than in the last two sessions, a fact which Sir Hector attributed to the passing of the state of uncertainty in which they had been living. The numbers were still large, for although there were nearly 700 fewer men in the university than at this time last year the number of women students had risen slightly. In addition some 200 students had come from London. It was in the national interest to have a full supply of qualified doctors, engineers and certain groups of chemists. Thus two faculties were working at full pressure and a third nearly so. Divinity students had been largely exempted from the requirements of the Military Service Acts so that that faculty was also fully maintained. The most severe losses had been suffered in the faculties of arts and law. The position of all faculties was affected by the Government decision that no men under the age of 20 were to be called up. This meant that students entering the university at the age of 18 might hope to complete two years' work. Permission had also been granted whereby a student might apply to a hardship committee for a short postponement of his calling-up in order to complete a particular stage of his course. The war had had a serious effect on finance, for although the Government grants were being maintained at their peace-time level, at least until next year, the decline in fee income and the rise in the costs of materials and of wages would result in a deficit of £6000–7000 and next year this would probably be a good deal larger. The immediate effect would have been more disastrous if it had not been for the substantial economies arising from the absence of members of the staff on military and other service. In one or two departments, particularly in the later stages of the medical curriculum, he had had some anxiety as to the possibility of maintaining an adequate teaching service. Legislation had been worked out in collaboration with the other Scottish

Universities for the establishment of war-degree courses enabling students in some faculties to take their degrees in shorter periods.

TREATMENT OF VENEREAL DISEASES

In his Honyman Gillespie lecture on modern aspects of anti-specific therapy in Edinburgh last week Dr. R. C. L. Batchelor said that no-one surveying the therapeutic measures adopted in the treatment of venereal diseases could fail to be impressed by the great improvements that had taken place during the last two decades. The advance was perhaps more striking in the case of gonorrhœa than in syphilis, but even in the latter there had been noticeable advances. In 1935 the League of Nations international committee drew up a scheme for the treatment of early cases of syphilis. The general adoption by clinics of this scheme had not only stabilised the treatment but had ensured that all suitable cases should have a sufficiently intensive course of therapy. The patient received a unit course consisting of 10 weekly intravenous injections of a trivalent arsenical compound such as "914" (each injection containing 0·6 g. for men and 0·45 g. for women) and 10 biweekly intramuscular injections of a bismuth preparation (each injection containing 0·3 g. of metallic bismuth for men and 0·2 g. for women). The patient received four or five such courses, a four-weeks' rest being interpolated between each unit course. The whole course lasted 50–60 weeks. For the next two years examinations of blood and cerebrospinal fluid were made at three-monthly intervals. While a routine scheme such as this had manifold advantages it must be used with care and discretion, for individual cases required variations—age and weight and concomitant disease must be taken into consideration. Such intensive therapy was quite unsuitable for old-standing cases where tertiary lesions might be present. This was particularly so in alcoholics and in cases of liver diseases. Indeed Dr. Batchelor advised that the routine course should be used only for the treatment of acute cases.

With the introduction of the sulphanilamide compounds the treatment of gonorrhœa, he said, had completely changed. With sulphanilamide 60–75 per cent. cures could be obtained; with sulphapyridine 90 per cent. From these results, obtained in the Edinburgh clinic, sulphapyridine was considered the drug of choice. Some 6 per cent. of cases were drug-resistant and in these older methods had to be adopted. The course of sulphapyridine (in grammes) should be: 2, 2, 1½, 1½, 1½, 1½, 1, 1, 1, 1 daily. By the tenth day the great majority of cases should be cured. If no result was obtained by the 14th–18th day there was no point in continuing the drug. In severe cases it might be advisable to give an extra dose at night. It could be used in both sexes and in all types of cases, even for gonococcal conjunctivitis of the newborn and vulvovaginitis of the young girl. In these conditions he recommended doses of 0·125 g. four times daily and 0·25 g. four times daily respectively. Of the untoward results of sulphapyridine vomiting was the only one likely to cause trouble. It could often be relieved by giving 15 mg. of nicotinic acid daily, or if this failed parenteral administration of the sulphapyridine could be tried. If a thorough course of treatment was given such complications as strieture, arthritis and so on should be very rare. The probable cause of the high relapse-rate reported from some clinics was the failure to realise that infection of the prostate, Littré's glands or Bartholin's glands required local treatment as well as sulphapyridine. The three-month test of cure must still be employed.

As regards the special problems that were likely to arise from the war Dr. Bachelor held that, prevention being better than cure, the instructions given with regard to immediate swabbing of the genitalia with potassium bichromate and the wider use of condoms were beneficial steps. The general morality would not be lowered since fear of venereal infection in no way reduced the incidence of promiscuous intercourse. Treatment with sulphapyridine greatly reduced the length of treatment in gonorrhœa, while the proper organisation of clinics for syphilis allowed soldiers who were undergoing intensive therapy to remain on active service.

IN ENGLAND NOW

A running commentary from our peripatetic Correspondents

I BELIEVE—though I have no statistics to support my belief—that wars increase the volume and improve the art of letter-writing, and that despite the Chancellor of the Exchequer. Besides the letters to and from husbands, fathers, sons and sweethearts in the Services, there is among us civilians a strengthening of family bonds and a greater desire to hear how our relatives and friends are faring and reacting to the changed order of things. Separation of children from their parents through evacuation schemes has also produced its flood of letters; the eldest member of our family, aged nine and now in Devon, writes a dutiful letter every Sunday, and even at that tender age one sees a steady improvement in the letter-writing. Perhaps the thought that I, too, in my younger days used to write every week to my mother was one of the stimuli which have set me writing to her more regularly again. Now, as far as letter-writing goes, I am ordinarily as lazy as my neighbour, but having overcome the primary inertia I take some pains and pride in trying to write a "good" letter. Indeed, if truth be told, I find almost as much pleasure in the letter well written (as I imagine!) by me as in those I receive from my friends. All of which leads up to the point that in response to the latest of my filial epistles telling of the effects of meat-rationing on us townspeople my mother has sent me a week's menu of the kind of food that was—and probably still is—the staple diet of the farming folks in the north-east of Scotland. It is a menu which would delight the heart of Sir John Orr and I give it more or less as it was written down.

Sunday.—Breakfast: oatmeal brose with creamy milk, oatcakes, home-made scones, butter, syrup, tea. Dinner: Scotch broth, butcher meat, vegetables (potatoes, turnip, peas, cabbage), apple-dumpling, home-made ale. Supper: high tea with fish or eggs.

Monday.—Breakfast: as on Sunday and every other day. Dinner: broth (second-day), potatoes, milk-pudding, oatcakes, milk (these last two form part of every midday and evening meal). Supper: porridge, scones, jam.

Tuesday.—Dinner: potatoes done in the oven with fat from Sunday meat, junket and cream, cheese. Supper: milk-porridge.

Wednesday.—Dinner: potatoes, mustard sauce, scones and jam. Supper: tapioca pudding and cream.

Thursday.—Dinner: mashed potatoes with oatmeal stuffing,* rice pudding. Supper: pease-meal brose and cream.

* The doric equivalent is "chappit tatties and skirley."

Friday.—Dinner: milk-rice soup, cheese. Supper: potatoes and salt herring, scones and syrup.
Saturday.—Dinner: potato soup (made with meat-bone), rice pudding. Supper: porridge, fish.

You will note that butcher meat (which alternated with poultry) figures in the diet-sheet only on Sunday, and even then only a limited ration was available to each member of a household which seldom numbered less than a dozen. "With sufficient milk, vegetables and potatoes there need be no malnutrition. With sufficient bread, fat, potatoes and oatmeal, there will be no starvation": Orr and Lubbock. Generations of hardy and healthy farm-workers in the north-east of Scotland endorse these statements.

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We are getting very fond of our gas-bags. Gilded by the horizontal rays of the rising sun all turned the same way they look like the ram-headed statues of Amon at Karnak. But they take on all sorts of forms according to the light and the way the wind is blowing—two fat maggots, or sheep lying in the fields and especially the old one that kept a shop in *Alice Through the Looking-glass*. When they are pulled down and part deflated they look for all the world like bulgy elephants with floppy ears. In a mist or behind midday clouds they resemble all the denizens of the sea. In winter we did not notice them much. I do not think we look up at the heavens when they are grey, but now they are blue with white clouds again we begin once more to take an interest in our barrage. The most glorious adventure of all was when one was chasing the moon, and she nearly in her first quarter was running away with her head turned sideways roaring with laughter as he tried to catch her.

The number of names they have acquired show their popularity. Some have applied the collective name to the individual and called them "barrages." Our Mary who is deaf and cannot read has heard this and calls them "garages." Children have been heard to speak of the "heavenly cows." One good lady that I met referred to them as "Blimps," but we who saw their predecessors stick to the old word and name them "gas-bags."

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The Chancellor of the Exchequer has enjoined us to save all we can and lend it to the Government. So far, so good. But are we to do this with all the money (if any) we are able to save? I quite understand that I ought to renounce sherry, a foreign product which has to be brought in ships required for more urgent services; and I suppose the same applies to tobacco. But what of whisky, beer and gin which are home-grown? Have they been taxed to discourage me from buying them, or is it my duty to buy and consume them in the largest possible quantities? Ought I to write more letters or fewer now that postage has been increased? If I squander money on luxuries I am unpatriotic; but if, on the other hand, I buy no British-made luxuries I help to create poverty and unemployment among the producers thereof. It is all very difficult; or, rather, it would be if I were saving money.

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We are proverbially creatures of habit; a recent one of mine (and of others I could mention) has been to arrange my Saturdays so as to leave the hour from 8–9 P.M. free at all costs for listening to "Garrison Theatre." Mr. Shadwell's guest artistes may be a mixed bag but about his permanent cadre of entertainers there can hardly be two opinions; the stentorian sergeant-major, the pert programme girl, and lastly Mr. Jack Warner himself whose refreshing humour epitomises the indomitable spirit of Cockaigne with which those of us medically (and otherwise) educated in the East End of London are so happily familiar. Only a cockney could keep his end up as Mr. Warner does and survive the snubs so mincingly and devastatingly delivered by Miss Joan Winters. Indeed, on the all too rare occasions when he scores it is almost a relief. If Garrison Theatre ends this week it will leave a gap hard to fill in the life of at least one doctor's household.

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Multiple pregnancy, brought to a happy conclusion, is always a cause for parental pride. The production of even one child is often privately thought to be a miracle. Naturally the production of two, three or more at a single sitting is an indication for public as well as private wonder. Then comes the difficult task of naming the infants. Ordinary children can be called Betty or John, but not so the triplet or quadruplet. The wonder of their birth must be perpetuated. Triplets are fairly easy—Faith, Hope and Charity or Ruth, Rachel and Rebecca quickly suggest themselves. But quadruplets are more difficult. The four Evangelists, the four seasons, the four condiments (vinegar to be included in our cruet) or the four horsemen of the Apocalypse are not always apt. If one "quad" is a boy, a flavour of patriotism may be added to the triplet mixture, a method that was adopted recently in Alabama, when the coeval brother of Faith, Hope and Charity was named Franklin, after the President.

Twins are fairly common, and to be a twin does not make one so different from other children. But triplets or quadruplets are still curiosities. They start life with the handicap of feeling one of a litter. Childhood is complicated by intimate questions from complete strangers: "And what did you weigh when you were born?" they ask. "Are you all quite normal, and right in the head? Now isn't that wonderful!" Have not these children already enough to endure? Names of assembly may give pleasure to parents; but what of the child?

Societies have been formed to protect children from dirt, which most children like. Also from disease and cruelty, which are usually only transient. But nobody has ever formed a Society for the Prevention of giving Uncommon Christian Names to Children. Yet this thing is permanent. Not even deed-poll can save you. Imagine the feelings of the twins of the last war saddled for life with the name of Gallipoli and Dardanelles, perhaps even called Galley and Delly for short! To be called Charity, and frequently told you are the greatest of these, especially if you happen to be the fattest, is humiliating to the sensitive child. Pride is one of the seven cardinal sins. This sin of the parents is often visited upon the child of the multiple pregnancy. Which reminds me how awful it might be if anybody ever had septuplets. Anger, Lust, Envy, Pride, Sloth, Gluttony and Covetousness are the seven associated things that leap to the mind, but perhaps a mother's heart might insist on the seven wonders of the world, which would be even worse.

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My friend the elderly consultant is delighted at this new order about economy in clothing stuffs. He will now be able to continue to wear his suits after they have at last become comfortable. He makes his suits fit him and does not suit himself to a tailor's ideas. The reach-me-down has therefore always been as efficient with him as Cork Street. But the process takes time, and just when a suit is fitting his curves and irregularities it shows serious signs of wear. Then his wife says he must have another and sends

for the tailor. When it is delivered he does not open it and the cardboard box stands propped against a book-case for months till the tidying hand unpacks it. For a few weeks the suit hangs from his book-case; then he moves it into the wardrobe where it stays another six months or so. But there is a disadvantage in this delay for the suit is not getting any wear, and still fits as stiffly on his shoulders as when the tailor tried it on. Yet when the discussion comes, as come it must, whether the suit should be thrown away, he dates its age from the month he took it into wear, while she makes it older by nearly a year, from the day she summoned the tailor. Now he can patriotically refuse to allow another to be ordered; and she must acquiesce. Thus he saved the decrepit one he wears down at their cottage. She was beginning to demand that the one he wears on Saturday to travel down should become the cottage suit, and he was wondering how to circumvent the change. He admits minor discomforts do arise from this long wear. In the pair of trousers that he calls his "nearly best" the right-hand pocket has so long borne the weight of coppers that he must now carry them in the left. But sometimes he forgets, as when he was pocketing a hard-earned fee and three shillings rattled on the floor just as he was about to pick up the notes. The lady stared and he handed her out before he retrieved them. So also in the bus he always dives for his right pocket first, finds the hole, and then being somewhat bulky heaves himself in the other direction, to the disturbance of his neighbours, before he gets his shilling from the left. Again when he puts his spectacles into the top left-hand pocket of his Saturday-morning waistcoat, which is also deficient in its depths, they slip through and end at the lower margin where the lining joins the cloth and he has to work them up again with one hand while angling with two fingers of the other through the pocket. And he does not ask her to mend it, for if he did he feels sure it would be condemned not only for Saturday mornings but even for that pottering at the cottage which he calls gardening. Or so it was a week or so ago; now he feels the garment safe. He can even look in his wardrobe with zest, confident that however long the war lasts he will not have to buy another suit before it ends. His tailor is joining the Auxiliary Pioneer Corps.

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One of Anthony Hope's characters neatly observes that a king should know all creeds but embrace none. What is good enough for a king should be good enough for a doctor. During the Spanish civil war I happened to be attending, at one and the same time, an ardent young communist and a devout Roman Catholic lady. I heard the case for both sides expressed with fervour and eloquence, and, needless to say, I agreed with both. During the present war I have had as a patient a keen but despairing pacifist who pressed a copy of Sir Francis Acland's "Unser Kampf" into my hands. "Read that," he said, "it is the only hope for the world." I promised to do so. My next patient, a retired barrister, though confident of ultimate victory, deplored the financial cost of the war but still more the presence of the enemy within our midst. "For instance, that fellow Acland," he said, "is a public menace." More closely reasoned, realistic and practicable than "Unser Kampf" is Sir William Beveridge's recent pamphlet, "Peace by Federation?"[1] He is all for exorcising Hitlerism but points out that if Germany is smashed she will be a ready prey for Soviet communism. In his view Germany must be included in a federation as soon as she is willing to return to democracy. He does not object to his plan being called Utopian because "the choice is between Utopia and Hell." He feels that federation of kindred nations will work if the people themselves desire it, but not as a plan thrust upon them by their rulers. He has written this pamphlet "to persuade the people of this country and of her allies and of other countries to choose this plan for themselves."

1. Peace by Federation? Federal Tracts: No. 1. By Sir William Beveridge, K.C.B. London: Federal Union, 44 Gordon Square, W.C.1. Pp. 31. 6d.

PUBLIC HEALTH

Candidates for the Second Evacuation

WHEN the Government scheme for a further evacuation of school-children was propounded the Ministry of Health estimated that the number of children from the metropolitan evacuating area for whom provision should be made would be 266,900, including 160,000 from the administrative county of London. The process of registration was supported by as much publicity as possible, through the press, the B.B.C., posters and personal contact between the school staff and parents, but the response has been disappointing. During the first fortnight of March every householder in the evacuation areas was sent a leaflet offering "another chance of sending your children away" and parents were given until the end of the month to register their children. A summary now issued shows that less than 10 per cent. of the total number of children in the metropolitan evacuating area were registered. The actual figure was 43,481 out of 456,225, or 9·5 per cent. The parents of 16 per cent. of children definitely declined to register but the remaining 74·3 per cent. merely failed to reply at all. The L.C.C. think that if and when the scheme is put into operation many unregistered children may present themselves for evacuation, and if they are to be medically examined on the day of evacuation or the day before it may be necessary to add considerably to the council's medical and nursing staff. The Central Medical War Committee has therefore been approached with regard to reinforcements.

Points from Annual Reports

In the smaller boroughs the medical officer of health is always the school medical officer and has himself to do work which in larger units is delegated to numerous officers. In these small boroughs the coördination of school medicine with maternity and child welfare is complete. Dr. J. E. Spence in his school report for *Eccles* says that continuous supervision is exercised over the welfare of all children from birth up to the school-leaving age and there is no gap in the supervision of the pre-school child. This is usual in the boroughs and for this reason many borough medical officers resent having to present separate reports to the education and health committees, feeling that in doing so they divorce what they have taken much trouble to unite. In Eccles as in all districts there was some dislocation of the school medical service after the declaration of war, but it got back to normal working before the end of 1939, except that it was unfortunate in losing its school dentist, so that the dental work was still in abeyance when Dr. Spence wrote his report in March 1940. The passage in which he says that the children found

to have vermin in the head are confined to a few well-known families might have been taken from any school report, for in the boroughs head lice have become family heirlooms. No completely satisfactory way of dealing with them is known, for the offending families are usually of poor mentality.

Dr. E. T. H. Wood, of the county borough of *Bootle*, an evacuation area, was amongst the first to present his school report for 1939. In this report we get some reliable facts on the thorny subject of head lousiness in evacuated children. In 1938 a head survey of the Bootle children showed 1979 unclean out of 11,054. This is a high proportion and may mean either that the children of Bootle are below the level of freedom from nits of most towns, or that the standard aimed at is high. Probably both, for Dr. Woods says the trouble with unclean heads in evacuation was foreseen and early in 1939 a list of recidivists was prepared, brought up to date and forwarded to the medical officer of the reception area. These children, who when at home can only be kept passably respectable by the continuous action of the school medical department, would naturally be in worst condition at the end of the summer holidays and receiving households might not be aware of this or what was necessary to cleanse them and protect their own children. The preparation of lists of troublesome children was an idea which, had it been generally adopted, would have saved much recrimination, for the chief complaint of the reception areas was that they were not told what to expect and in many cases were given an erroneous impression of what they were about to receive.

Dr. Thomas Lauder Thomson in his report of *Dumbarton* county tells us that it was a very wet year, though the rainfall was distributed irregularly, from 52·80 inches in Garshake to 112·15 inches in Glen Finias. Commenting on the water supply to the county he says that most of the waters, unless treated by slow sand filtration, contain *Bacillus coli* because the supplies are derived from hillsides used for grazing. The presence of coliform bacilli in large numbers in upland surface waters points to excessive use of the catchment area for grazing purposes, which may in some instances be objectionable, but minor pollutions from this source are not of much moment and in wet districts are unavoidable unless the catchment area is kept free of animals. The year was very favourable for health; the corrected death-rate was 11·4, the birth-rate 16·1 and the infantile mortality 49. There was only one maternal death, and there were 40 deaths from tuberculosis giving the very low rate of 0·47 per 1000. The deaths from pneumonia were 63 against 94 in 1937 and those from cancer 128 against 143. An interesting matter was the recommendation of the Joint Smallpox Hospital Board that the provision of a special hospital should not be proceeded with. The county council suppressed the board and decided that one of the existing isolation hospitals should be used for the treatment of smallpox.

Old Fletton with 7721 inhabitants is the largest town in *Huntingdonshire*, which is a small and almost purely rural county with a population of 56,560. In 1938 its birth-rate was 15·2, death-rate 12·1 and infantile mortality-rate 46·2. The rate of illegitimate births, 62·7 per 1000, is high. No deaths were attributed to puerperal sepsis, but of 11 notified cases of puerperal pyrexia two died, and these were the only maternal deaths. Dr. C. B. Moss-Blundell refers to the large number of samples of milk which showed a cream-content below the legal limit. There was little evidence of added water and appeals to the cow suggest that the milk was naturally poor. He refers to the value of the freezing-point test for discriminating between milk naturally thin and milk artificially watered. In his preface he writes: "One cannot help but feel that the policy of the Milk Marketing Board to pay on quantity irrespective of quality has had a very serious effect upon the standard of milk."

Infectious Disease in England and Wales

DURING THE WEEK ENDED APRIL 13, 1940

Notifications.—The following cases of infectious disease were notified during the week: Scarlet fever, 846; whooping-cough, 603; diphtheria, 693; enteric fever, 21; measles (excluding rubella), 3592; pneumonia (primary or influenzal), 873; puerperal pyrexia, 167; cerebrospinal fever, 411; poliomyelitis, 4; polio-encephalitis, 2; encephalitis lethargica, 4; dysentery, 51; ophthalmia neonatorum. 84. No case of smallpox, cholera, plague or typhus fever was notified during the week.

The number of civilian and service sick in the Infectious Hospitals of the London County Council on April 12 was 990 made up of: scarlet fever, 139; diphtheria, 159; measles, 3; whooping-cough, 66; enteritis, 55; chicken-pox, 68; erysipelas, 33; mumps, 17; poliomyelitis, 1; dysentery, 11; cerebrospinal fever, 102; puerperal sepsis, 16; enteric fevers, 8; german measles, 164; other diseases (non-infectious), 47; not yet diagnosed 101.

Deaths.—In 126 great towns, including London, there was no death from smallpox or enteric fever, 1 (0) from scarlet fever, 3 (0) from measles, 7 (0) from whooping-cough, 25 (0) from diphtheria, 26 (4) from diarrhœa and enteritis under 2 years, and 72 (10) from influenza. The figures in parentheses are those for London itself.

Fatal cases of diphtheria were scattered over 21 great towns, Birmingham reporting 3. There were also 4 deaths from influenza at Birmingham. Hendon reported 3 deaths from diarrhœa.

The Lancet 100 Years Ago

May 2, 1840, p. 202.

From a report of the libel action of Syme v. Lizars.

JAMES SYME, Professor of Clinical Surgery in the University of Edinburgh *v.* John Lizars, Professor of Surgery to the College of Surgeons, Edinburgh.

The pursuer, in his "Summons of Damages," contended as follows, namely, that in July or August, 1839, the defender published a book, entitled, "A System of Practical Surgery," Part II., wherein the defender did calumniously write, at page 196, the following words:—"In every operation about the anus, however unimportant it may seem, the operator cannot be too careful in averting hæmorrhage, as many have died from such neglect. Nor is it improper, as an additional warning, here to mention another case which was under the care of our Professor of Clinical Surgery a few years ago; he operated on a gentleman for a slight fistula in ano, left the part inadequately defended, and dreadful hæmorrhage ensued; the Professor was sent for, arrived, groped about in the anus with his knife, *searching for a needle in a hay-rick*—I mean, for a blood-vessel to be tied; meantime the life of the patient was saved by *deliquium animi*; but to this day the wound remains unhealed, and the unfortunate man a miserable nervous invalid, from the excessive loss of blood."

Mr. PATRICK ROBERTSON for the defender.—On the subject of *fistula in ano* there seems to be a great war raging among the doctors. They are divided into the Pluggites and the Anti-pluggites. One set are for defending with double care; another trust to the tightness of ligatures, where these are used, or, instead of compression, they trust to a little bit of lint introduced into the wound. In short, there is war *to the knife* on this great question . . . Now, the defender is a keen Pluggite, and, says he in his book, "for God's sake, take care of hæmorrhage." And then, as an additional warning, he adds, "Take care, above all, of the practice of the anti-pluggites; for in the hands even of the great Dr. Syme, such is the danger of not defending well the parts, &c." Surely there was no harm in this. . . .

The Jury, after an absence of ten minutes, returned with a verdict of £50 damages.

LETTERS TO THE EDITOR

SCIATICA AND THE INTERVERTEBRAL DISC

SIR,—Mr. Pennybacker opens his interesting paper by reminding his readers that "any new treatment for sciatica should be received with caution." There are few maladies in respect of which the reminder is more necessary, yet when we turn from it to the author's summary wherein we learn that "most cases of sciatica are due to lesions of the intervertebral disc" we may well ask whether, carried away by enthusiasm for a new discovery—ex America semper aliquid novi—he has not abandoned the critical and prudent mood in which he first put pen to paper.

Had he been content with a little less he might have carried conviction to his readers a little more. No-one will contest that a proportion of cases of chronic sciatica so-called is due to this lesion of the disc. What this proportion may be it remains for more ample experience to discover, and in the meantime no good purpose is served by a false simplification of a difficult problem.

Mr. Pennybacker further maintains that the laminectomy that follows logically as a mode of treatment upon his diagnostic conclusion has no disabling or untoward sequels. Yet in a discussion upon this subject to which he refers in his paper (*J. Amer. med. Ass.* 1939, **113**, 2019) Dr. Willems of Chicago, speaking primarily as that dispassionate spectator of therapeutic triumphs, the medical referee, stated that he had seen "several dozens" of men upon whom this operation had been performed for lesions of the disc, that they had "all sorts of complications" and that he could not get them back to work again. He ended with a plea for conservatism in treatment. While this summary statement clearly lacks the amplification we should like, it as clearly indicates that a laminectomy may not have for the patient all the attractions it possesses for the neurosurgeon.

Yet this matter of treatment is secondary to that of diagnosis. Has Mr. Pennybacker established his thesis that most cases of sciatica are due to disc lesions? I venture to submit that he has not. Of his 30 cases we are not told what proportion consisted of chronic cases that had resisted all modes of conservative treatment. It is a reasonable inference, however, that most of them were of this order; that is of a category in which the proportion of disc lesions was very probably much higher than in a similar number of acute and recent cases.

Most medical men of experience must have encountered many cases of sciatica in which an acute attack has cleared up under conservative treatment never to return, and cases of undoubted sciatica in which objective sensory loss and loss of the ankle-jerk have not been found, and in which no rigidity of the lumbar spine remained when the acme of pain had passed and examination became possible. This considerable group of cases does not come under the observation of the neurosurgeon and it is therefore not surprising that he knows nothing of their existence. To escape the difficulty of accounting for them as due to disc lesions by calling them sciatic neuralgia would be a juggling with words.

I submit therefore that there is a large category of cases of acute non-recurrent sciatica in which there are no grounds for postulating an intervertebral disc lesion. It may well be that some of these cases could give a history of trauma to the back, but trauma is a red herring that crosses many clinical trails. To take this view is not to belittle the undoubted value of the observation that lesions of the intervertebral disc underlie some cases of sciatica. It is simply to preserve a sense of proportion and to sound a note of warning against the inference that some, better armed with technique than with judgment, may be tempted to draw—namely, that most cases of sciatica should be subjected to laminectomy. If this notion ever becomes widespread it will no longer be safe for the unfortunate citizen to have a pain in his leg or in his "lower back."

I am, Sir, yours faithfully,

London, W.1. F. M. R. WALSHE.

ACUTE SUBDURAL HÆMATOMA

SIR,—Mr. Eckhoff does service in reporting his case of the acute form of subdural hæmatoma in your issue of April 12, and describes it so well that there is little to add. Most surgeons having special interest in intracranial surgery are constantly on the lookout for this remediable complication of head injury, and from a personal experience of eighteen cases I would add the following points.

1. It is not essential that there should be a direct blow on the head; any accident producing severe jarring of the whole body may cause subdural hæmorrhage. One of my patients slipped on some ice, sitting heavily on the buttocks; a second was knocked over by a large wave whilst bathing.

2. Though it is true that the hæmorrhage is usually on the same side as the larger pupil—when inequality of pupils is present—the reverse may be the case; and even if a clot be found on the homolateral side, one must remember that there may still be another on the opposite side.

3. The cerebrospinal fluid is not of necessity blood-stained or xanthochromic, and three of my cases had absolutely normal C.S.F.

4. Drowsiness is usual, but in 1929 I saw at Harvey Cushing's clinic a woman who was excitable and who talked with much vivacity and gesticulation in a completely foreign language that no interpreter could understand, in whom a fairly large subdural hæmatoma was found on the left side.

5. The tendency to bilateral distribution cannot be too strongly emphasised.

I have definite views on the best way of dealing with these cases, and for several years now have treated them as follows. The hæmatoma is sought for, as by Mr. Eckhoff, through thumb-nail trephine-holes. When the blood is clotted it is removed with gentle suction, and the cavity is then drained for 48 hours by a small rubber tube passing between adjacent scalp stitches. If the blood is fluid suction is not employed but merely drainage is established. At first this technique sounds heretical but it was evolved for the following reason. About four years ago, and within a period of six months, I had two cases of large subdural hæmatoma that were treated by the more usual method of removal and then closure. Both died, yet at autopsy nothing abnormal was to be found; and the only explanation seemed to be that the sudden decompression of the compressed brain allowed a reactionary œdema which spread to involve the medulla. Another great advantage of drainage is that there is no fear of blood re-collecting without warning. Drainage in this manner is surely better than blind aspiration.

I am, Sir, yours faithfully,

F. A. R. STAMMERS.

MENTAL ILLNESS AS A CLUE TO NORMALITY

SIR,—There are three points in Surgeon Lieut.-Commander Taylor's article on which I should like to comment. (1) He deprecates the old-fashioned differentiation between neurosis and psychosis because there is no sharp dividing line between the two. He himself "favours six arbitrary stages" between normality and gross psychosis. (2) He regards normal personality as a combination in various proportions of six behaviour patterns. (3) He suggests that these may prove to be biochemically determined.

(1) As for his six arbitrary stages, they are quite as arbitrary as, and rather more complicated than, the older differentiation between neurosis and psychosis. Many reasons have been given for this differentiation. Some are absurd, but the rest are mostly concerned ultimately with the individual's relationship with reality. There will always be a division between those patients whose relationship with reality remains more or less intact, and those in whom it is more or less disordered. This is not in the least invalidated by the fact that there is no sharp dividing line and that there are many patients in whom the distinction cannot profitably be made. Let the author make use of his six stages, but let him not deny to others the simpler division.

(2) His six facets of normality represent as he points out six patterns of reaction which are frequently observed in mental illness. It is good to demonstrate the relationship between normality and disease, but in using such labels there is a grave danger of a kind of superficial pseudo-objectivity. We have recently been presented with a series of studies of the character of Hitler in which the terms hysterical and paranoid have been freely used. I believe that, in this connexion, nothing is gained by the application of such terms, the use of which only makes it harder to reach the truth. I wonder if Dr. Taylor really thinks that by calling the conduct of Joan of Arc hysterical (plus some "hypomania" and "intelligence"!) it is thereby "simply explained." I fear that it is much too simply explained, and that such an "explanation" illustrates the limitations of all our diagnostic terms. Let us by all means use these labels when facts allow, but let us also remember that there are many occasions when the facts must be allowed to speak for themselves and cannot be translated into other terms. This applies as much to the problem of neurosis versus psychosis as to Dr. Taylor's facets of normality.

(3) With regard to the biochemical factors in personality. No doubt the biochemist will be able to offer more possibilities of treatment in the future than he has in the past. Meanwhile we must attempt to modify personality at whatever point we can reach it, and today psychotherapy still remains the most valuable weapon in our armament.

I am, Sir, yours faithfully,

Cassel Hospital, Penshurst. C. H. ROGERSON.

COMMUNAL MEALS

SIR,—I would suggest that the time has come when national and coöperative canteens should supplement uneconomic methods of home cooking. In this war, as in the last, people will be working ten and twelve hours a day. These will be chiefly the elderly men, the young people and the women. But after twelve hours work a woman does not go home and cook a joint, two vegetables and a pudding for herself and her children. She buys something (anything) at the shop round the corner. It is true that not all women will be working. A number of them will stay at home to look after their children. Let us take an average sort of case, the wife of a private with three children aged 10, 8 and 6. Her total income is 36*s.* a week (39*s.* 6*d.* in the London area). She is faced, moreover, with a steadily increasing cost of living. Unless something is done to implement this income it is hard to see how she and her family will avoid being undernourished. For a generation now we have known what war babies are. They were "difficult" in the nursery, "neurotic" at school, and as young adults they are rather less robust than their seniors and juniors. We must now prepare for another generation of war babies.

I give here the comparative costs on April 24 of a meal produced for four people and the same meal produced for a hundred, the figures being for food only, and not including fuel, labour or equipment.

	Meal for 4 people	*Meal for 100 people*
	s. d.	*s. d.*
Stewed lamb	1 4 ..	17 9
Carrots, peas and potatoes ..	10 ..	13 6
Prunes and custard	1 1 ..	8 2
	3 3	£1 19 5
Cost per head ..	9¾*d.*	4¾*d.*

The present method of a hundred kitchens producing food for four hundred people is as unprofitable as a hundred village smithies producing weapons for four hundred soldiers. A scheme such as I suggest is not out of keeping with the English national character. It would be a development of the provision of meals in schools and day nurseries. If people wished, they could take food home with them to eat. The canteens would, of course, be run on a non-profit basis, the charges being simply the cost of production. Such communal marketing and cooking would make the most of the rations available, cutting waste to a minimum. Incidentally, it would make rationing itself much simpler. As doctors, I believe we should take an active part in organising and encouraging some scheme of this kind.

I am, Sir, yours faithfully,

Upper Wimpole Street, W.1. E. HERZBERG.

UNITED HOSPITALS SOCIALIST ASSOCIATION.—At a meeting held on April 23 this association was inaugurated. There were present 57 students, representing many of the London hospitals, and the chair was taken by Mr. Ruscoe Clarke, F.R.C.S., chairman of the Joint Medical Socialist Committee. Mr. Somerville Hastings, F.R.C.S., who outlined the purpose of the meeting, spoke of the necessity for relating socialist belief to the daily life of the hospital. Medical students who are interested are invited to communicate with the hon. secretary of the association, University Labour Club, 15, Percy Street, W.1.

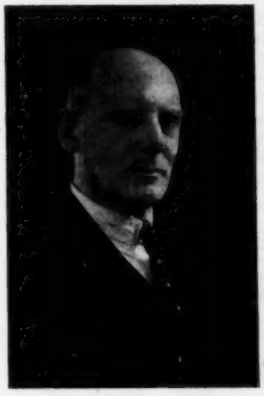
RECRUITING CENTRE FOR NURSES.—King Edward's Hospital Fund for London had arranged to set up a nursing recruitment centre last September. The project was postponed, but the centre has now been opened at 21, Cavendish Square, W.1, where it is available to all who wish to enter the nursing profession. It is staffed by state-registered nurses, who are prepared to give information on all branches of training, and individual guidance to those entering upon a nursing career. The centre will keep in touch with the training-schools, will collect and distribute information as to the various pre-nursing courses now being established as a means of "bridging the gap" between the age of leaving school and that of entering hospital, and will supply speakers on nursing as a career, who will give their services in schools and other educational centres.

OBITUARY

JOHN TATE

M.R.C.S., D.P.H.

Dr. John Tate, county medical officer of health for Middlesex, died on April 21 at the Central Middlesex County Hospital. Born at Bradford in 1880 and educated at the grammar school there, he studied at University College Hospital, London, and qualified M.R.C.S. in 1906. He held various house-appointments but he had early shown an interest in preventive medicine, and in 1908 he took his D.P.H. and obtained the position of assistant medical officer for Middlesex. He was to serve the county for the rest of his life. When he joined the staff the public-health department consisted of the county medical officer, an inspector of midwives and one clerk. To-day it numbers several thousands and it has grown upon the sound foundations laid by Dr. Tate. In 1913 he had become deputy county medical officer and in 1923 he was appointed county medical officer. When the poor-law institutions were handed over to the county council in 1929 he evolved a grading scheme of salaries and conditions of employment which have attracted the right men and women to the council's service, for he realised that a hospital's staff is more important than mere buildings and equipment. He was a past president of the Association of County Medical Officers, and he served on the Committee for the Prevention of Blindness set up by the Ministry of Health. In the last war as a captain in the R.A.M.C. he saw active service in France. Dr. Tate, a colleague recalls, had a well-balanced, logical and orderly mind, and in addition to his gifts of foresight and imagination possessed a fund of sound common sense. He had the power to a remarkable degree of being able, at a glance, to see the many aspects of a complicated problem; and then in a few lucid sentences to analyse its complexities and indicate the path along which its solution was to be found. This faculty deeply impressed all those who worked with him, and much of his success was due to his skill in explaining, in clear and logical sequence, an abstruse medical or technical problem to a lay committee. As a chief he was admirable—loyal to his council, his colleagues and his staff, by whom he was respected and loved.



Wykeham.

Dr. Horace Joules writes: Tate's zest for the complicated problems of health and hospital organisation had served to energise his frequent returns to duty during the past fourteen months. He refused to husband energy, which he felt could be more usefully employed in the work he loved. Those who feel that whole-time service of the community is enervating can never have known such a man. He spared no pains and looked facts squarely in the face. Despite a realisation of his own fate his ever-ready humour would often break a tense situation. The fortitude with which he bore months of increasing pain testified to the courage that always characterised his actions. His talks of the country, the garden, music, or the sea, were a constant delight. His incisive grasp of the basic problems of ill health enabled him to encourage in the hospitals of his county a spirit of devotion to duty which will long bear testimony to his insight.

HERBERT FRANCIS WOOLFENDEN

M.D. LPOOL, F.R.C.S.

Mr. H. F. Woolfenden died on April 10 at the age of 60, just four days after he had completed his career as honorary surgeon to the Liverpool Royal Infirmary. His health had been failing for many months from serious gastric trouble, yet he bravely faced long operation lists when obviously too weak for such an effort.

Woolfenden qualified M.R.C.S. from Liverpool University in 1904 and took his M.B. the following year. He was awarded the Thelwall Thomas fellowship in surgical pathology and after postgraduate study in London, Paris and Berlin he was appointed senior demonstrator in anatomy at Liverpool University in 1908. He left to become surgical registrar at the Royal Infirmary, and in 1909 obtained his F.R.C.S. He was a little uncertain whether the early years of struggle for consultant rank were worth while, but he enjoyed his pipe, his golf, and his work as a tutor. The war brought him work in plenty. By this time he had been appointed an assistant honorary, and he was attached to the 11th General Hospital and served as surgical specialist with several other units. He was promoted acting lieutenant-colonel and was mentioned in dispatches. In his Surgeon's Journal Harvey Cushing paid a tribute to the way he "faced the music."

Woolfenden's contributions to medical journals were not numerous but they will be remembered. He showed a keen appreciation of the truth, and terseness in expression. His interest was aroused by the inexplicable: Could the failure of simple appendicectomy to relieve pain be diminished by cæcoplication; was fundectomy the right procedure for peptic ulcer; was lead of value in cancer? His operation list often contained cases of trigeminal or glossopharyngeal neuralgia, and he became an authority on sympathectomy and thyrotoxicosis. He invented or reintroduced the split Thomas splint, and his interest in orthopædic surgery laid the foundations of that department at Liverpool Royal Infirmary.

Burrell & Hardman.

Woolfenden lost two of his best friends from septicæmia following a trivial scratch—W. S. McLellan with whom he had struck up a friendship in the old days in Liverpool before the war, and John

Campbell, his colleague and collaborator in France. In 1919 he married Miss Beryl Hughes and her death from the same disease changed his way of life.

R. K. writes: "Of him the words of Canon Dawson were true—'He was a silent surgeon seeking solace in his work'—for life had been for him a very tangled skein of brief joy and tragic grief. His silence was often harmful to himself, but it was understandable. Often a sufferer himself, he felt the sufferings of others most acutely."

He leaves two sons and a daughter who is a medical student.

JAMES JOHN DAY

O.B.E., M.R.C.S., D.P.H.

Dr. J. J. Day, who died on April 13 at Sandwich, was born in 1873 at Port of Spain in the British West Indies, the son of James John Day, professor of chemistry at Queen's College, Trinidad. He was educated at Aske's School, Hatcham, and the Middlesex Hospital, where he qualified M.R.C.S. in 1896. He held posts under the Foreign Office and the Colonial Office at Benion City and Sapeli in West Africa, and later he went south as civil surgeon to the South African Field Force in the Highland Brigade bearer company. About the turn of the century he returned to this country and for a time was an assistant medical officer under the old Metropolitan Asylums Board. He took his D.P.H. in 1902 and the following year became a partner in a practice at Sandwich. He began his public-health work as one of the medical inspectors of school-children of the Kent education committee, and found it to his liking and on his appointment as medical officer of health for East Kent and the borough of Sandwich he gave up his private practice. In 1919 he became chairman of the Kent local medical and panel committee and his work there became one of the main interests of his life. His "Defence of the Panel System" was published in the *English Review* in 1923. In 1927 on his resignation from the chairmanship of the committee he was appointed chairman of its executive body and he held this office until 1935. Dr. Day also represented the Kent county council on the Kent insurance committee and was active on many sub-committees. He married Mabel, daughter of W. J. Gordon, who survives him.

PARLIAMENT

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

THE House, which began consideration of the Budget last week and had two days of general debate, has continued its discussions this week and shown much more desire to prepare, nationally prepare, for action on a big scale rather than to cut down taxation. Indeed, the complaint has been rather that we have not had sufficiently drastic taxation. The desire is expressed on all sides to get on with the job more and more vigorously. Sir Herbert Williams complained of the delay and said that "the administrative methods now being pursued in all Government departments are a crying scandal." Strong dissatisfaction is expressed always now if things do not go quickly enough. There have been mutterings too about the Communazi activities in this country and the need of tightening up control of anti-national activities. There has been some adverse criticisms of special features of the Budget but as questions of detail only and not with the desire to escape even heavy payments.

Mr. A. V. Alexander, winding up the general debate last week, emphasised the unity of the nation and said that the world must understand that the whole nation would put its weight behind the national effort. When Sir John Simon replied he thanked Mr. Alexander for his "well-chosen declaration." "A foreigner," said the Chancellor, "must think this a very curious country, for I believe it to be completely true that there has never been such fundamental unity amongst us as exists today." The curious feature of the Budget debate has been the complaint of too little taxation. Sir John Simon has added 100 million but members demanded 1000 million and this cannot be raised by taxation in the ordinary way.

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We have moved away from the ordinary taxation budget to the national economy budget. The questions to be decided, although expressed in the budget in terms of money, are questions of large-scale control of economic resources and of man-power. We are not moving in the Nazi or Communist direction but we are moving to the British form of national organisation in which a main feature will be the reliance on voluntary organisation. What was not mentioned in the debates, except obliquely, was the more intensive organisation of our internal resources, but it is certain that we shall have to use all "surplus" voluntary labour and all "surplus" unused resources of land or manufacturing capacity.

The organisation of aid to agriculture through the holiday labour of schoolboys at secondary and public schools between the ages of 14 and 17 under the auspices of the Ministry of Agriculture is an example of the use of these resources. The unoccupied middle-class or retired person will also be asked to do his bit. The allotments and back-garden production of food will probably spread yet more widely and the question is being asked: "Why should not all schools grow a large part of the food for the girls and boys attending them by using the labour of these pupils?" This could be done easily in many places. A great increase in subsistence food production would save the tonnage of many ships.

The spread of the war to Scandinavia, and the threat of the spread of war elsewhere have been at the back of many of these speculations. The taking into the Army of more and more age-groups of militiamen spreads the realisation of the vastness of the war effort over more and more people in the nation. And what is particularly interesting is that convinced pacifists of pre-war days who have been sincere and consistent advocates of avoidance of war by peaceful diplomacy are now openly admitting that a real peace cannot now be negotiated. The Labour Party has been circularised with a letter from the secretary of the French Socialist Party describing the Communists there as acting against the interest of the nation and as attempting to divide the Allies by seeking to turn French public opinion against Britain.

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It has been almost a relief to get away from these intense issues to the question of workmen's compensation, a matter which, however heatedly discussed, is at least of normal type and species. The bill brought forward by the Government is called the Workmen's Compensation (Supplementary Allowances) Bill, but it has been adversely criticised because

of its cheeseparing provisions and because of its prudery. Government departments in general make provision for the "unmarried wife," or, to use the Archbishop's phrase, "unmarried dependant living as a wife." But not the Home Office. Oh dear me, no! Nor if a man marries after an accident are allowances payable. But if he was married then his wife will get 5s. a week and "legitimate" children an allowance at a rate not exceeding 3s. a week.

The bill may fill a gap temporarily but it does not deal with workmen's compensation in a way to meet expert medical and legal opinion and certainly not in a way to meet House of Commons opinion. Mr. Greenwood condemned it, Miss Rathbone spoke of its creation of "gratuitous anomalies," and, worst of all from the Government point of view, Sir Arnold Wilson, who moved an amendment when the matter was before the House before which saved the Government's bacon, was against it. Sir Arnold roundly declared that he did not believe that the Home Secretary had had any real discussions with the leaders of industry. He seemed sure that they had consulted the Accident Offices Association but thought their opinion unrepresentative. The accident offices, he said, were wholly unaware that there was a social problem as well as a technical one. Sir Arnold had an alternative suggestion—namely, that the great representative employers should ask the Accident Offices Association to place before them scales outside and beyond the act enabling them to pay compensation at higher rates up to 75 per cent. of wages. Contracting-out powers existed in the act and Sir Arnold thought that employers would be willing to pay extra premiums. A doubling of benefits would be got by a 25 per cent. addition to premiums. Sir Arnold ended by quoting Ecclesiasticus about a good man who has taken a wrong turning and asked the Home Secretary to repair the error he had committed. For this bill Sir Arnold could not vote but he hoped to come back from where he is serving in the Air Force to vote for the third reading of a better bill.

In the House of Commons on April 23 the Royal Society for the Prevention of Cruelty to Animals Bill and the King Edward VII National Memorial Association Bill were read the third time and passed.

QUESTION TIME

Supplementary Rations

Mrs. J. L. ADAMSON asked the parliamentary secretary to the Ministry of Food whether he had yet received the Medical Research Council's advisory committee's report on food rations in regard to the requirements of invalids and expectant mothers on special diets for supplementary rations.—Mr. A. T. LENNOX-BOYD replied: The advisory committee have considered the need of invalids and expectant mothers on special diets for supplementary rations and have expressed the opinion that under present conditions only in the case of persons suffering from diabetes mellitus is any variation required. In such cases additional meat coupons can be obtained on the surrender of sugar coupons.

Milk for Children

Mr. F. MESSER asked the President of the Board of Education whether, in view of the danger of malnutrition amongst school-children arising from rationing and rising costs, he would make provision for the supply of free milk to all school-children.—Mr. H. RAMSBOTHAM replied: The existing law does not admit of the supply of free milk except to necessitous under-nourished children, but in nearly all public elementary schools milk is available under the milk-in-schools scheme at less than half the ordinary retail price.

Mrs. ADAMSON asked the Minister of Health whether he had yet reached an agreement satisfactory to distributors and consumers with the Milk Distributive Committee so that the arrangements outlined in circular 1840 extending the school milk scheme to children under five years of age and to expectant mothers could be put into immediate operation.—Mr. WALTER ELLIOT replied: I regret that I am not yet in a position to make a statement.

Notification of Measles

Mr. GROVES asked the Minister whether the notification of measles was intended to include that of the variety commonly known as German measles.—Mr. ELLIOT replied: No, Sir.

Rank of Conscripted Doctors

Mr. R. W. SORENSEN asked the Minister of Labour and National Service whether all medical practitioners who were now to be called up for military service according to their age-groups were given a commission; what was the position of such medical practitioners when they decline a commission; and whether those who so decline would be compelled to serve in a non-medical capacity in the ranks or would be allowed to continue medical work of a civil character.—Mr. ERNEST BROWN replied: No medical practioner will be called up for military service without being offered a commission as a medical officer. I cannot believe that medical practioners called up in these circumstances would decline to accept a commission, but if such a case should arise the man concerned clearly could not be allowed on that account to escape his liability for military service.—Mr. SORENSEN: May I take it that if a medical practitioner does refuse a commission he will be called upon to serve in the ranks?—Mr. BROWN: He will have his liability to military service subject to the general law, which applies to all in the same way.

Mr. T. E. GROVES asked the Secretary of State for War whether, as the rank held in previous R.A.M.C. service was to be taken into account in fixing the present rank of officers in that corps, he would consider giving credit and promotion accordingly to men who held commissioned rank as combatants in the last war and who were now doctors.—Mr. OLIVER STANLEY replied: It is not considered that previous commissioned service in other branches of the Army should be reckoned as equivalent to previous commissioned service in the R.A.M.C. for the purpose mentioned, but such service is, nevertheless, taken into special consideration when R.A.M.C. officers are selected to fill appointments carrying acting higher rank.

Extension of National Health Insurance

Mr. G. N. GARRO-JONES asked the Secretary of State for Scotland whether he was considering the representations from Scottish health insurance committees urging that arrangements should be made to provide medical treatment for dependants of insured persons serving with the forces.—Mr. D. J. COLVILLE replied: The conclusion reached by the Government is that they cannot fairly distinguish for this purpose between dependants of men serving with the forces and dependants of insured persons in civil occupations. The question of extending medical benefit to the dependants of all insured persons has been sympathetically considered from time to time, but the Government do not consider that in present circumstances they would be justified in proposing so far-reaching a development of social policy. The reply, therefore to the representations which have been received must be that the Government are unable to adopt the suggestion made. I should add that in the great majority of cases the pay and allowances provided by the service departments should be sufficient to enable the cost of medical treatment to be met and that the War Service Grants Advisory Committee have power to supplement such pay and allowances in cases of exceptional hardship.

Mr. D. J. B. JOEL asked the Minister of Health whether he would take steps to arrange that the temporary war allowances granted to meet the increased cost of living should be excluded from the calculations of remuneration for national health insurance, and that the limit of income for compulsory insurance in respect of non-manual workers should be raised from £250 to £400.—Mr. ELLIOT replied:

I have no power in the absence of amending legislation to adopt the suggestion contained in the first part of the question. As regards the second part, I would refer Mr. Joel to the reply given by the Minister of Labour on Feb. 20. The decision then announced covers national health and contributory pensions insurance as well as unemployment insurance.

Emergency Medical Service

Mr. T. E. HARVEY asked the Minister whether any county council or borough council had been authorised or given powers to appoint a medical officer in charge of air-raid precautions medical services and delegate to him the complete responsibility for such services in independence of the medical officer of health for the county or borough.—Mr. ELLIOT replied: The precise relation to the medical officer of health of any medical officers appointed by a local authority in connexion with air-raid precautions services is a matter for the authority, but it is generally accepted that the responsibility for the casualty services should rest with the medical officer of health.

Soldiers and Sick-leave

Captain S. F. MARKHAM asked the Secretary of State for War if he could make a statement clarifying the position with regard to sick-leave for the home forces and the British expeditionary forces.—Mr. STANLEY replied: Sick-leave is granted on the recommendation of the medical authorities, and, provided that the sickness is not due to the patient's own fault and that the medical officer considers it necessary for the patient to go home, a free warrant is given.

Complications of Vaccination

Mr. ALFRED EDWARDS asked the Minister (1) whether he was aware that Dennis Barnes, who died a month after vaccination, stated to his relatives that he was one of several men who indicated when paraded for vaccination that they objected, and that it was only because they were informed that they would lose pay if they were not vaccinated and became ill, and would be put on fatigues at once, that they consented; and would he take steps to see that intimidation of this sort was put an end to, and (2) if, in view of the fact that in several cases of postvaccinal encephalitis inquired into by the Rolleston Committee on Vaccination the vaccination wound had practically healed before encephalitis developed, why no inquest was held to ascertain how the streptococcal infection entered the late Gunner Barnes's system.—Mr. STANLEY replied: I have been definitely assured that no form of threat or pressure was used in this case. The decision not to hold an inquest was made by the coroner in the light of the pathologist's report. The soldier's death was not due to encephalitis, but to streptococcal infection.

Mr. GROVES asked the Minister of Health how many cases of encephalitis following vaccination had been reported during the last year; and how many of these had been serving soldiers or sailors.—Mr. ELLIOT replied: Six such cases came to the notice of my department during 1939, of whom three were serving soldiers.

Miners and Silicosis

Mr. JAMES GRIFFITHS asked the Secretary for Mines if he was aware of the fact that, during 1939, 91 miners were certified to have died of silicosis and 355 were certified to be disabled by the disease in the South Wales coalfield; and what special measures were being taken to reduce the incidence of the disease.—Mr. GEOFFREY LLOYD replied: I am aware of the position as regards silicosis among miners in South Wales and my department is collaborating fully with the Medical Research Council in the large-scale investigations which are being made there. H.M. Inspectors are continuing to promote the adoption and improvement of a variety of methods for the prevention and suppression of dangerous dust and an additional inspector attached to the staff at the Mines Department has been appointed to devote his whole time to giving further help in dealing with the difficult technical problems involved.

Mr. GRIFFITHS asked if it was proposed that these representatives would issue a separate report on the preventive measures which might be necessary.—Mr. LLOYD said that with regard to the Medical Research Council investigation he thought, subject to advice, that that was so.

Industrial Health Research

Mr. RIDLEY asked the Home Secretary whether his attention had been drawn to Emergency Report No. 1 of the Medical Research Council Industrial Health Research Board; and whether he proposed to take any action in connexion with the recommendations contained therein.—Sir JOHN ANDERSON replied: Yes, Sir. The Home Office is represented on the Industrial Health Research Board, and I called attention to the importance of this report in a reply which I gave on April 18 to a question by the Member for London University. Action on the recommendations is a matter for all those who are responsible for the organisation and management of industry, but the Home Office is taking steps to ensure that the report shall be made widely known and the factory inspectors will of course continue to do their share in securing that progress is made in those matters which fall within the provisions of the Factories Act, such as lighting, ventilation, temperature and safety precautions.

Vacancies

Aberdeen Royal Infirmary.—Gynæcological registrar, £300.
Altrincham, St. Anne's Hosp.—Res. surg. O., at rate of £200.
Ashford, Grosvenor Sanatorium.—Third asst. res. M.O., at rate of £100.
Birmingham City.—Res. asst. M.O. for Monyhull Colony, £350. Also asst. res. M.O. for Erdington House, £300.
Birmingham and Midland Hosp. for Women.—H.S., at rate of £100.
Birmingham United Hosp.—Res. surg. reg., £100.
Bradford Royal Eye and Ear Hosp.—H.S., £180.
Brighton County Borough.—Tuberculosis officer and asst. M.O.H., £800.
Bristol Royal Hosp.—Res. anæsthetist, £250.
*British Postgraduate Medical School, Ducane Road, W.*12.—Obstet. H.S. and five H.P.'s, each at rate of £105.
Cardiff, King Edward VII Welsh National Memorial Association. Asst. res. M.O. for South Wales Sanatorium, £200.
Chester Royal Infirmary.—H.S.'s, £150.
Chichester, Royal West Sussex Hosp.—Jun. H.S., £125.
Devon County Council.—Deputy county M.O., £750.
Dudley Guest Hosp.—Cas. H.S., £150.
Durham County Council.—Jun. res. M.O. for Seaham Hall Sanatorium, £200.
Edmonton Borough.—Asst. M.O.H. and asst. school M.O., £550.
Glasgow Royal Mental Hosp.—Jun. asst. M.O., £300.
Great Yarmouth County Borough.—Asst. M.O.H. and asst. school M.O., £500.
Halifax County Borough.—Asst. M.O.H. maternity and child welfare, £500.
Hertford County Hosp.—H.P., at rate of £150.
Hull Royal Infirmary.—Cas. O., at rate of £150.
*King Edward Memorial Hosp., Ealing, W.*13.—Cas. O. and deputy res. M.O., at rate of £225.
Lancashire County Council.—M.O.'s, £200.
Liverpool Hosp. for Consumption and Diseases of the Chest.—Res. M.O., £150.
London County Council.—Temp. asst. M.O., Class I, £350.
Manchester City.—Res. asst. M.O. for Crumpsall Hosp., at rate of £200.
Manchester, Duchess of York Hosp. for Babies.—Sen. res. M.O., at rate of £175.
Newcastle upon Tyne, City and County.—Res. med. asst., at rate of £250. Also H.P.'s and H.S.'s, at rate of £200 and £150, for spec. hosps.
Newport County Borough.—Jun. asst. res. M.O. for public assistance hosp., at rate of £200.
Newport, Mon, Royal Gwent Hosp.—Cas. O., at rate of £175. Also H.P.'s and H.S.'s, at rate of £160 and £150 respectively.
Northampton County Mental Hosp., Berrywood.—Med. supt., £900.
Nottingham General Hosp.—Res. cas. O., at rate of £150.
Nottingham Hosp. for Women.—H.S., at rate of £150.
Oldham Royal Infirmary.—Res. surg. O., £400
Preston and County of Lancaster Queen Victoria Royal Infirmary. Two H.S.'s to spec. depts. and res. anæsthetist, each at rate of £150.
Reading, Royal Berkshire Hosp.—Cas. O., at rate of £150.
Rochdale Infirmary and Dispensary.—Second H.S., £150.
Rochdale County Borough.—Temp. res. M.O., £350.
*Royal Chest Hosp., City Road, E.C.*1.—H.P., at rate of £200.
Sheffield Royal Infirmary and Hosp.—Anæsthetist, £350.
Sheffield Royal Infirmary.—Res. H.S.'s, each at rate of £80.
Taunton and Somerset Hosp.—H.P., at rate of £125.
Warwickshire and Coventry Joint Committee for Tuberculosis.—Temp. first asst. M.O. at Memorial Sanatorium, £350. Also jun. asst. M.O. for Memorial Sanatorium, at rate of £250.
West Hartlepool, Cameron Hosp.—H.S., £150.
*Westminster Hosp., St. John's Gardens, S.W.*1.—Physician for diseases of the skin.
Wolverhampton Royal Hosp.—H.S.'s and cas. O., each at rate of £100.

MEDICAL NEWS

University of Oxford

On April 26, the degree of D.M. was conferred on G. A. Hodgson.

University of Cambridge

On April 27 the following degrees were conferred :—

M.D.—*B. S. Jones.
M.B., B.Chir.—*P. G. H. Gell, *J. H. P. Gauvain, *G. H. P. John, *R. D. Kennedy, *T. J. A. Phillips.
* By proxy.

On May 6 at 5 P.M. Prof. W. W. C. Topley, F.R.S., will deliver the Linacre lecture on Authority, Observation and Experiment.

University of London

At recent examinations the following were successful :—

D.P.M.

Special Knowledge of Mental Diseases.—J. D. N. Hill and R. E. D. Markillie.
Special Knowledge of Mental Deficiency.—M. S. Rayner.
Part A.—Jaime de Bastarrechea, Helen Baker, Rankine Good, and Matthew Radzan.

University of Wales

At recent examinations the following were successful :

D.P.H., Part I.—Sonia D. Dymond, Gladys M. Herbert, Margaret H. Vickery, Llary M. Williams, and Mary Williams.

Royal College of Physicians of London

At a meeting of the college on April 25, with Sir Robert Hutchinson, the president, in the chair, Mr. Walter Elliot, Prof. Édouard Rist (Paris), Prof. Alan Brown (Toronto), and Dr. W. E. Gye were elected fellows under by-law XXXIX(b). The following members were elected fellows :

Sydney Fancourt McDonald, M.D. (Brisbane); Douglas Murray McWhae, M.D. Mel. (Perth); John Wycliffe Linnell, M.D. Camb. (London); Guy Austin Lendon, M.D. Adelaide (Adelaide); Cyril Carlyle Beatty, M.B. Lond. (London); Wilfrid Burton Wood, M.D. Camb. (London); Joseph Bamforth, M.D. Liverpool (London); Calvert Merton Gwillim, M.D. Lond. (London); Herbert Victor Morlock, M.D. Lond. (London); Alexander Lyall, M.D. Aberd. (Aberdeen); Thottakat Bhaskara Menon, M.D. Madras (Madras); Shankar Sahai Bhatnagar, M.D. Lausanne, Major I.M.S. (Kasauli); William Brockbank, M.D. Camb. (Manchester); Wilfrid Fletcher Gainsford, M.D. Lond. (Birmingham); Hugh Walker Gordon, B.Chir. Camb. (London); Samuel Levy Simpson, M.D. Camb. (London); Frederick Horace Smirk, M.D. Manc. (Dunedin); Geoffrey Sydney Todd, M.B. Sydney (Midhurst); Stanley Jack Hartfall, M.D. Leeds (Leeds); William Arklay Steel, M.D. St. And. (Hillingdon); John Richard Hugh Towers, M.D. Camb. (Leeds); Ernest Rohan Williams, M.D. Lond. (London); Thomas Benjamin Davie, M.D. Lpool (Liverpool); Walter Montague Levitt, M.D. N.U.I., (London); Eric Gordon Oastler, M.B. Glasg. (Glasgow); Edward Weston Hurst, M.D. Birm. (Adelaide); Paul Hamilton Wood, M.B. Mel. (London); Frederick Murgatroyd, M.D. Lpool (London); Kenneth James Franklin, M.D. Oxfd. (Oxford); Thomas Shirley Hele, M.D. Camb. (Cambridge); Lionel Everard Napier (Calcutta); Leybourne Stanley Patrick Davidson, M.D. Edin. (Edinburgh); Arthur Rupert Hallam, M.D. Edin. (Sheffield); and Harold Edward Whittingham, M.B. Glasg., Air Vice-Marshal R.A.F.M.S. (Wendover).

Dr. N. B. Capon was appointed Milroy lecturer for 1941, his subject will be the principles underlying the influence of prenatal and neonatal health upon later life. Dr. George Graham will deliver the Croonian lectures on recent work on diabetes mellitus at the college at 2.30 P.M. on May 16 and 21.

The following were admitted to the membership :—

Alexander Arthur Alderdice, M.B. Sydney ; Charles Anderson, M.B. Lond. ; George Herbert Harry Benham, M.B. Manc., L.R.C.P. ; Austin William Byrne, M.B. Lpool. ; Charles Harry Catlin, M.D. Birm. ; Philip Richard Kendall Coe, M.B. Lond. ; Robert Cruickshank, M.D. Aberd. ; Mohamed Abdel-Halim El-Okbi, M.B. Cairo ; William John Strachan Ewan, M.B. Aberd. ; Malcolm Weld Fletcher, M.B. Adelaide ; Edward Brodie French, M.B. Camb. ; Anderson Garland, M.D. Lond. ; Nansi Eirlys Harry, M.B. Wales ; Rupert Desmond Charles Johnstone, M.B. Lond. ; Denis Dalmain Keall, M.B. Camb., Lieutenant R.A.M.C. ; Franklyn Holt Lloyd, M.D. Florence ; John Edward Lovelock, M.B. Oxfd. ; George Edward Maloney, M.B. N.Z. ; Samuel Oram, M.B. Lond. ; Ralph George Park, M.B. N.Z. ; Robert Johnstone Porter, M.B. Camb. ; Leo Rau M.D. Berlin ; Charles Graham Riley, M.B. N.Z. ; Allan Thomas Marsh Roberts, M.B. Lond. ; Mark Andrew Rugg-Gunn, L.R.C.P., Surgeon Lieutenant R.N. ; Herman David Ruskin, M.B. Witwatersrand ; Georgy Petros Ghattas Sobhy Bey, M.D. Cairo ; George Lees Taylor, M.D. Manc. ; Helen Margaret Taylor, M.B. Sydney ; Peter Graham Todd, M.B. Lond. ; Hugh John Trenchard, M.B. Birm., Flying-Officer R.A.F.M.S. ; and Stephen Adrian Yaffe, M.D., Queen's Univ., Kingston.

Licences to practise were conferred upon 205 candidates (181 men and 24 women) who have passed the final examination of the Conjoint Board and have complied with the by-laws of the college. The following are the names and medical schools of the successful candidates :—

D. J. Anderson, Lond. ; H. J. Anderson, Camb. and St. Thos. ; M. Y. Ansari, Osmania and N.E. Lond. ; G. A. S. Anthony, St. Mary's ; Louis Babrow, Cape and Guy's ; D. W. Bain, St. Mary's ; A. M. Barnett, Camb. and St. Thos. ; A. J. Barrett, Lond. ; A. J. Barwood, St. Bart's. ; O. H. E. Bayles, Guy's ; L. B. G. Bennett, Camb. and Manc. ; I. J. Bernstein, St. Bart's. ; Margaret R. Biggs, Roy. Free ; G. V. Blaine, St. Thos. ; A. R. Blowers, Middlesex ; F. V. A. Bosc, Univ. Coll. ; B. F. Boyd-Cooper, Charing Cross ; T. R. M. Bristow, Camb. and St. Thos. ; H. T. Calvert, Camb. and St. Thos. ; J. C. K. Campbell, Camb. and St. Thos. ; Joan E. Campkin, Roy. Free ; David Caplan, Lpool ; Maxwell Caplin, Lond. ; J. F. Cartwright, Camb. and St. Bart's. ; Isabella S. Chalmers, Roy. Free ; M. A. Charrett, St. Mary's ; Joan M. Cheale, Roy. Free ; Ralph Cocker, Manc. ; C. W. D. Cole, Middlesex ; E. H. L. Cook, Lpool ; Dorothy J. Cooper, Roy. Free ; P. R. Cooper, Oxfd and Guy's ; Daniel Coueslant, Univ. Coll. ; J. P. Crawford, Guy's ; R. C. Cronin, Birm. ; G. H. Daglish, Lpool ; L. R. Dalton, St. Mary's ; R. W. Danziger, Camb. and St. Mary's ; E. J. D'Arcy, Univ. Coll. ; J. I. Davies, St. George's ; Joyce G. Davies, Camb. and Roy. Free ; R. R. Dickson, St. Bart's. ; S. W. Dunkin, Leicester Royal Infirmary ; Mary E. Eiloart, King's Coll. ; J. A. Elliott, Camb. and St. Thos. ; R. E. Ellis, St. Bart's. ; Marguerite P. Elman, West Lond. ; J. A. Evans, Cardiff ; E. J. Ewell, St. Mary's ; Edith I. Fettes, Roy. Free ; R. D. Firth, St. George's ; F. M. H. Fletcher, Manc. ; I. G. Forbes, St. Thos. ; C. A. E. Forssander, Middlesex ; T. L. Frank, Middlesex ; L. M. Franklin, Middlesex ; G. A. Fraser, W. Ontario and West Lond. ; S. S. Freedman, Leeds ; H. J. Friend, St. Mary's ; Kenneth Froome, St. Thos. ; Aitolia Georgiadis, Univ. Coll. ; Charlotte F. Godrich, Cardiff ; M. B. H. Golden, St. Bart's. ; John Gordon, Guy's ; T. W. Greatorex, Camb. and St. Thos. ; John Greene, St. Mary's ; Evan Griffiths, St. Bart's. ; C. W. Hall, Lpool. ; Margaret E. Harker, Roy. Free ; R. W. Harries, Camb. and Middlesex ; J. H. Harrison, Middlesex ; F. M. Hayes, Camb. and Guy's ; W. H. N. Heavens, King's Coll. ; F. C. N. Holden, Westminster ; S. A. Holmested, Lond. ; J. A. G. Horton, St. Bart's. ; Patricia K. Hosford, Manc. ; R. A. House, St. Bart's. ; D. J. Howell, Cambridge and St. Mary's ; F. H. D. Hutter, St. Mary's ; G. H. Illingworth, Leeds ; C. W. H. Ingoldby, Lond. ; F. L. Ingram, Guy's ; P. V. Isaac, Lond. ; R. C. Jack, Camb. and St. Bart's. ; J. P. Jackson, St. Thos. ; Joseph Jacobs, St. Bart's. ; J. A. C. James, Camb. and Middlesex ; E. W. Jarratt, King's Coll. ; W. H. W. Jayne, Westminster ; G. T. E. Jenkins, King's Coll. ; Margaret C. Jenkins, Cardiff ; A. T. G. Johnston, Camb. and St. George's ; E. W. Jones, Lond. ; G. G. Jones, Lond. ; Alexander Katz, St. Bart's. ; Josse Kaye, Lond. ; E. P. Kempsey, Univ. Coll. ; N. S. Kenchington, Camb. and Birm. ; M. S. Khan, Charing Cross ; Humphrey King, St. Bart's. ; R. F. Kingston, St. Bart's. ; Christine Kirby, Birm. ; N. D. Lance, Camb. and St. Thos. ; J. J. Landon, Camb. and King's Coll. ; S. E. Landy, St. Mary's ; Marcus Latner, St. George's ; T. S. Leedham, Guy's ; Ivan Levinson, Lpool ; Emmanuel Levy, St. George's ; Abraham Libertson, St. Bart's. ; D. G. Lloyd-Davies, St. Thos. ; A. G. G. Long, Camb. and Lond. ; Mary E. Long, Roy. Free ; P. R. Lowns, Univ. Coll. ; W. T. C. Lumley, King's Coll. ; M. G. McColl, Lpool ; D. G. C. Macdonald, King's Coll. ; I. M. Macgregor, St. Thos. ; Kathleen B. McClintock, Roy. Free ; J. C. H. Maidment, Lond. ; D. H. Manson-Bahr, Camb. and Lond. ; Leonard Marre, Middlesex ; Winifred A. Mason, Roy. Free ; R. L. Meyers, St. Bart's. ; Charles Midwinter Jones, Lpool ; P. F. Milling, Camb. and St. Thos. ; H. V. Morgan, Camb. and St. Bart's. ; R. W. M. Morrison, St. Mary's ; M. C. Mundle, Camb. and Guy's ; J. M. Mungavin, Camb. and St. Bart's. ; Bernard Murphy, St. George's ; Herman Nagler, Charing Cross ; F. G. Neild, St. Thos. ; A. R. Nettleton, Middlesex ; Mary E. Nixon, Roy. Free ; D. M. Nundry, Guy's ; Gerald O'Gorman, Guy's ; B. H. O'Neill, St. Bart's. ; E. I. Ostry, St. George's ; P. J. Pablot, St. Bart's. ; Robert Park, Ox. and Middlesex ; T. G. Paxon, Lond. ; A. G. E. Pearse, Camb. and St. Bart's. ; Harold Petty, Leeds ; J. D. Philip, St. Mary's ; F. P. Powell, Oxfd and Univ. Coll. ; N. J. Pratt, Univ. Coll. ; B. H. Price, Camb. and King's Coll. ; John Price, St. Mary's ; Max Querido, Charing Cross ; Mary L. Rae, Roy. Free ; W. K. Raw, Westminster ; R. E. Rainey, Lond. ; H. H. Renyard, King's Coll. ; J. A. Rich, Middlesex ; H. G. H. Richards, Birm. ; E. A. Ritchie, Charing Cross ; T. W. Robson, King's Coll. ; David Romney, Lond. ; G. K. Rose, Birm. ; J. V. Rose, Middlesex ; R. W. Rowan, Charing Cross ; B. C. Rowlands, St. Mary's ; M. H. M. Ryan, Melb. ; Guy Savill, Univ. Coll. ; T. A. Shannon, Lond. ; R. E. Shaw, Leeds ; F. S. W. Shute, Guy's ; R. A. H. Simpson, St. Barts. ; C. C. Slack, Lpool ; B. J. D. Smith, St. Bart's. ; G. S. C. Sowry, St. Mary's ; W. H. Spencer, Guy's ; A. H. Staples, Lond. ; B. A. D. Stocker, Westminster ; Michael Strachan, Camb. and Lond. ; R. P. Strang, Camb. and Guy's ; Goodapaty Subba Rao, Osmania and Birm. ; P. E. Sundt, Charing Cross ; P. H. Sutton, Westminster ; D. R. Syred, St. Bart's. ; Cecil Thomas, Cardiff ; Gwendolen M. G. Thomas, Roy. Free ; F. A. Thompson, St. Bart's. ; Walter Thompson, Leeds ; T. C. Thorne, Leeds ; D. A. Tolhurst, St. Thos. ; E. W. J. Townsend, Bris. ; Madaravasal Venugopalachari, Madras ; Helen Wagstaff, West Lond. ; J. J. Walker, Camb. and Lond. ; A. I. Ward, St. Bart's. ; M. B. Watson, Camb. and Charing Cross ; G. O. C. D. Webb, Camb. and St. Thos. ; J. M. W. Wells, Guy's ; May D. Westerman, Roy. Free ; J. C.

White, Birm.; J. R. D. Williams, Guy's; I. H. T. Wilson, Univ. Coll.; W. J. S. Wilson, Westminster; W. M. Winter, Camb. and Middlesex; Nona E. Wright, West Lond.; P. S. Wright, Birm.; and Hyman Zinobar, Witwatersrand and Middlesex.

Diplomas in child health were granted to the candidates named in our issue of April 20 in the report of the meeting of the Royal College of Surgeons.

Royal College of Surgeons of England

On May 9 Dr. E. D. Adrian, F.R.S., professor of physiology in the University of Cambridge, will deliver a lecture on the nervous mechanism of pain. On Thursday, May 16, Dr. A. D. Macdonald, Leech professor of pharmacology in the university of Manchester, will speak on experimental spinal anæsthesia. These lectures, which are open to all medical practitioners and advanced students, will be held at the college, Lincoln's Inn Fields, W.C.2, at 4 P.M.

Society of Apothecaries of London

At a recent examination the following were successful:

Surgery.—T. A. H. Adkins, F. L. Dickson, F. W. Ford, E. Greenhalgh, P. Haden, G. T. Hammond, H. A. Kreiser, R. Morley, and E. A. Roberts.

Medicine.—J. B. Brownlie, G. E. H. Enderby, H. A. Kreiser, R. Morley, S. J. P. Ras and J. P. Rochford.

Forensic Medicine.—J. B. Brownlie, G. E. H. Enderby, H. A. Kreiser, R. Morley, S. J. P. Ras, and J. P. Rochford.

Midwifery.—J. B. Brownlie, J. B. Gurney Smith, S. G. L. Klein, R. Morley, E. A. Roberts, M. F. Smith and S. Wetherell.

The following candidates, having completed the final examination, are granted the diploma of the society entitling them to practise medicine, surgery and midwifery: T. A. H. Adkins, Guy's; J. B. Brownlie, Manc.; G. E. H. Enderby, Camb. and Guy's; F. W. Ford, Middlesex; J. B. Gurney Smith, Bart's; P. Haden, Camb. and Guy's; H. A. Kreiser, Guy's; R. Morley, Leeds; S. J. P. Ras, St. Mary's; J. P. Rochford, Oxfd and Guy's; and M. F. Smith, Camb. and St. George's.

Royal College of Obstetricians and Gynæcologists

At a meeting of the council on April 27, with Prof. W. Fletcher Shaw, the president, in the chair, the following admissions and elections were made.

Admitted to fellowship.—David Fyfe Anderson, Glasgow; Nicholas Attygalle, Ceylon; Adam Barr, Glasgow; Richard Alan Brews, London; Archibald Donald Campbell, Canada; Jajneswor Chakraverti, India; Gladys Helen Dodds, London; Robert Leslie Dodds, London; Edith May Hall, London; Clifford Donald Kennedy, Edinburgh; Henry Connell Lowry, Belfast; Herbert Edward Murray, Calcutta, India; Charles David Read, London; James Wilfrid George Hewat Riddell, Plymouth; John Sturrock, Edinburgh; Lydia Ida Huber Torrance, Calcutta; and George Abeysingha Weera Wickramasuriya, Ceylon.

Elected to fellowship.—Samuel Lambert Navaratnam, Ceylon; Edwin Moody Robertson, Kingston, Ontario; Manindranath Sarkar, Calcutta, India; and Dagmar Florence Curjel Wilson, Oxford.

Admitted to Membership.—C. W. F. Burnett, J. A. Chalmers, Alexander Culiner, G. J. Cuthbert, Samuel Davidson, Ronald Eadie, Alice B. Field, H. J. Green, H. A. Hamilton, D. R. Kilgour, Oswald Lloyd, H. S. McLelland, E. R. Rees, H. M. Rees, Jane B. Roy, C. S. Russell, P. N. Simons, and G. R. Turner.

At the annual general meeting which followed, Mr. Malcolm Donaldson, Prof. J. Chassar Moir, and Prof. Gilbert I. Strachan were elected to the council as representatives of the fellows, and Dr. A. W. Spain and Dr. J. M. Scott as representatives of the members.

Navy Medical Compassionate Fund

At the quarterly meeting of this fund, held on April 19, with Surgeon Vice-Admiral Sir Percival Nicholls, medical director-general of the Navy, in the chair, the sum of £274 was distributed among the several applicants.

Royal Medical Benevolent Fund

The annual general meeting of this society was held on April 22, when the following honorary officials were re-elected: president, Sir Thomas Barlow, F.R.S.; treasurer, Dr. Lewis G. Glover; secretary, Mr. R. M. Handfield-Jones. The address of the fund after May 24 will be: 1, Balliol House, Manorfields, Putney, London, S.W.15.

Medical Association of Pan-America

A conference will be held by this association in July, 1941, at Buenos Aires under the presidency of Dr. José Arce.

Naval Honours

Surgeon Lieut.-Commander H. L. Cleave, H.M.S. *Nelson*, has been mentioned in dispatches for "zeal, enterprise, and devotion to duty in ordering his sick bay from a state of chaos, and for his skilful and untiring care of the wounded." Surgeon-Lieutenant Alexander Donald, H.M.S. *Viscount*, has been similarly mentioned for his care of the sick and wounded survivors of the ss. *Domala*.

Royal Institute of Public Health and Hygiene

Sir Thomas Oliver will receive the guests at a reception to be held by the institute on Thursday, May 30, at 3 P.M., when the Harben medal will be presented to Sir Leonard Hill, F.R.S., and the Smith award to Sir William Savage. The reception will take place at 28 Portland Place, London, W.1.

British Empire Leprosy Relief Association

The annual meeting of this association will be held at the India Office, Whitehall, S.W.1, on Monday, May 6, at 3 P.M., under the chairmanship of Mr. Malcolm MacDonald, secretary of state for the colonies.

Tavistock Clinic

The annual lunch of the clinic will be held on Monday, May 6, at Grosvenor House, London, W.1, at 1 P.M., when Sir Walter Monckton will be the principal speaker. Further particulars may be had from the secretary of the clinic, Westfield College, Kidderpore Avenue, Hampstead, N.W.3.

Westminster Hospital

Dr. Thompson Barron has resigned his position as senior physician for skin diseases at this hospital and has been appointed supernumerary physician in the dermatological department.

Medical Diary

Week beginning May 6

ROYAL COLLEGE OF SURGEONS, Lincoln's Inn Fields, W.C.2.

THURSDAY.—4 P.M., Prof. E. D. Adrian: Nervous Mechanism of Pain.

UNIVERSITY OF CAMBRIDGE.

MONDAY.—5 P.M., Prof. W. W. C. Topley, F.R.S.: Authority, Observation and Experiment in Medicine. (Linacre lecture.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1.

TUESDAY.—5 P.M., special meeting of fellows. 5.30 P.M., general meeting of fellows.

WEDNESDAY

Proctology—5 P.M., annual general meeting. Mr. Lionel E. C. Norbury, Mr. W. H. Ogilvie, Prof. G. Grey Turner, and Mr. W. B. Gabriel: The Surgical Treatment of Idiopathic Ulcerative Colitis and its Sequelæ. Dr. Cuthbert Dukes: demonstration of specimens.

ROYAL INSTITUTION, 21, Albemarle Street, W.1.

TUESDAY.—5.15 P.M., Sir John Orr, F.R.S.: National Food Requirements.

SOUTH-WEST LONDON MEDICAL SOCIETY.

WEDNESDAY—8.30 P.M. (Bolingbroke Hospital, S.W.11), Dr. Alan Moncrieff: Cow's Milk and the Child.

MEDICAL SOCIETY OF INDIVIDUAL PSYCHOLOGY.

THURSDAY.—2.30 P.M. (11, Chandos Street, W.1), Dr. H. V. Dicks and Dr. Ellis Stungo: Analysis under Hypnotics.

BIOCHEMICAL SOCIETY.

FRIDAY.—2.45 P.M. (British Postgraduate Medical School, Ducane Road, W.12), short communications.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.12.

TUESDAY.—2.30 P.M., Dr. Hinds Howell: ward clinic.

WEDNESDAY.—11.30 A.M., clinico-pathological conference (medical). 2 P.M., Dr. T. C. Stamp: Bacteriology of Cerebrospinal Meningitis. 3 P.M., clinico-pathological conference (surgical).

THURSDAY.—2 P.M., Dr. Duncan White: radiological conference.

FRIDAY.—2 P.M., clinico-pathological conference (gynæcological). 2.30 P.M., Mr. V. B. Green-Armytage: sterility clinic.

DAILY.—10 A.M.–4 P.M., medical clinics; surgical clinics and operations; obstetrical and gynæcological clinics and operations. 1.30–2 P.M., post-mortem demonstration.

FELLOWSHIP OF MEDICINE AND POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.

Medical Society of London, 11, Chandos Street, W.1. TUES., 5 P.M., Mr. McNeill Love: Diseases of Joints.—Brompton Hospital, S.W.3. MON. and THURS., 5 P.M., M.R.C.P. course in chest diseases.

NOTES, COMMENTS AND ABSTRACTS

INFLUENZA IN 1940

IMPRESSIONS IN GENERAL PRACTICE

BY F. G. MACNAUGHTON, M.D. Edin.; AND A. M. MACQUEEN, M.D. Glasg.

THE strain of an influenza epidemic on the general practitioner is so great that he cannot keep accurate records of cases. Generally he is ill himself, short of sleep, and missing his meals in an endeavour to get through the work. In the rush of work there is the fear that he will miss an acute appendix amongst the many cases of gastric influenza, or overlook a commencing diphtheria amongst the sore throats. Hence this article is based on impressions rather than records.

The epidemic in Leicester began slowly, became gradually more severe in infectivity and symptoms, abated a little, then increased again, and then fell off. It lasted much longer than has any epidemic since 1918, but unlike that in 1918, the most severe cases occurred towards the end of the first wave, rather than in the second wave. The most remarkable features were the passage of days or even weeks between the initial symptoms and the collapse of the sufferer, the severe pain in the throat, the persistent and painful cough, the rapid variations in temperature and the neurotoxic symptoms.

The usual case began with a severe sore throat, with nothing to be seen to account for it, followed later by pharyngitis, laryngitis and tracheitis with or without a rise in temperature. Often the patient felt surprisingly well at this stage and complained chiefly of the cough and the pain on coughing; the cough was incessant. The pain was so severe that doses of ¼ gr. of heroin brought little relief. Anything from 1–14 days or more after this onset the patient would collapse, with temperature up to 105° F., pains all over, headache, sickness and pain in abdomen. The temperature would vary 4° or 5° F. in an hour or less with frequent sweatings and occasional rigors, and this might go on for several days. At this stage complications might arise: pneumonia, appendicitis, otitis media, frontal sinusitis (which was common), and conjunctivitis. Severe tonsillitis was rare, but the cases of appendicitis were associated with more or less tonsillar infection. The order in which the symptoms appeared varied. Sometimes the cough preceded the sore throat, occasionally either or both of these symptoms were absent, or they developed with the collapse or even after it.

ILLUSTRATIVE CASES

The following cases illustrate the long period between initial symptoms and collapse.

CASE 1.—A dairyman aged 35. On March 6 he complained of sore throat and on the 8th developed tracheitis, but he continued at work till the 16th (when he had to go to bed). On that day his temperature was 103·5° F., he had frequent sweatings, pains all over, headache, and sickness with some abdominal pain. The temperature settled by the 20th. On the 23rd he felt weak and dizzy, and his "legs would not go right." He returned to work on the 30th.

CASE 2.—An engineer aged 32. On Feb. 24 he had a sore throat which continued until March 11 when he collapsed with temperature 102° F., severe abdominal pain, headache and sweating. He had no cough.

CASE 3.—A motor-bus driver aged 39. He developed tracheitis on March 1, but remained at work for a week. On the 8th he felt shivery and his temperature was 103° F. Sweating and weakness continued, but there was no pain at all until the 12th when he had a severe sore throat. On the 16th he felt shaky and dizzy but returned to work. A week later he felt quite well.

Sometimes the delay between the initial symptoms and the collapse stage was very brief. For example:

CASE 4.—A schoolboy, aged 12, had a slight sore throat on Jan. 27. Next day he complained of severe headache, pain in the abdomen, and sickness. His temperature was 104° F., there was slight neck rigidity and a doubtful Kernig's sign. On the 29th, when four other members of his household were suffering from influenza, he had tracheitis and pain in the throat. A month later he still had difficulty in coördinated movement such as skipping.

The collapse stage occurred in some cases with no fever.

CASE 5.—A dentist aged 44. This man simply went to bed feeling completely done up a fortnight after he had had a cough with tracheitis.

The collapse stage might have given the impression of a double attack in some cases, but none of the patients was entirely free of symptoms between the initial symptoms and the collapse. We had the impression that when sulphapyridine was given at the commencement the disease was cut short and there was no collapse, but if it was delayed the drug was of little use. After the collapse stage the cough and sore throat as a rule cleared up at once, but when sulphapyridine was given early cough and sore throat returned repeatedly (in F. G. M.'s own case on three occasions), or continued for several weeks or even months, but there was no collapse.

Our complications included 23 cases of pneumonia with 2 deaths, both in elderly bronchitics, who only survived about thirty-six hours. All were treated with sulphapyridine. There were 8 cases of appendicitis; 5 cases of coronary thrombosis with 3 deaths; 1 case of generalised peripheral neuritis, which is progressing favourably; and several cases with meningeal symptoms.

CASE 6.—A woman, aged 74, had pneumonia and appendicitis. Operation was out of the question. She was treated with sulphapyridine. An appendix abscess ruptured into the bowel. A month later there was a further attack of pneumonia which was cut short with sulphapyridine.

CASE 7.—A woman, aged 29, was expecting a baby on March 11. On Feb. 27 she complained of sore throat and was given 1 gramme of sulphapyridine at once. She felt well next day. Her baby was born on March 12; that night her temperature was 101° F., and she had tracheitis. She was given 1 g. of sulphapyridine. The temperature was normal next day. The tracheitis continued and her temperature rose gradually to 100·2° F. on the fourth day. Sulphapyridine was given again, 6 g. in all, and her temperature gradually fell to normal in six days. There was no collapse stage and the patient felt well throughout except for a cough.

It is suggested that the collapse stage is an allergic phenomenon, that the early administration of sulphapyridine prevents sensitisation of the patient and hence collapse does not occur. In the cases where sulphapyridine was given immunity was not so well developed, as shown by the repeated sore throats, tracheitis and so on.

Approximately a third of the working population of Leicester was off work with influenza. The very poor were little affected perhaps because they were out of work and could not afford to go to the pictures and hence avoided infection in factory or picture house.

A BABOON BOY

TALES of children brought up by animals are always fascinating. We read of Mowgli in the nursery and of Tarzan in the school-room. In more scientific form the interest persists as we grow older and there are several reasonably authenticated cases of these children on record to which another has just been added.[1] In 1903 two troopers of the Cape mounted

1. Foley, J. P. jun. *Science*, March 22, 1940, p. 291.

police surprised a troop of baboons in a remote part of the south east Cape. They caught one who was not so fast as the others to find that it was a native boy of 12–14. He had long arms and his haunches were abnormally developed. He jumped about and wanted to walk on all-fours. He chattered like an ape, he was mischievous and wild, he preferred his old diet of raw corn and cactus to the best diet humans could provide. After a year in a mental hospital he was sent to a farm where he became a dependable worker. Most of the wolf-children of India, unlike Romulus and Remus, have proved to be idiots, but this boy is said to be "remarkably intelligent" and to have learnt to speak so that he was able to describe his life among the baboons. Though he retained traces of his unusual upbringing he seems to have adapted himself to his new life much better than other animal foundlings. It is thought that this is the first case of a human child being reared by infrahuman primates.

IMPORTED MEDICINES

AMONG the many articles which cannot now be imported except under licence are compounded medicines. These range from popular proprietary articles to preparations intended for prescription exclusively by doctors and include drugs in tablets, capsules and ampoules. It is said that the British agents for some of the better known proprietary articles took early precautions to augment their stocks and that in some cases their supplies are adequate to satisfy a normal demand for a long time to come. It is inevitable, however, that stocks of some commonly prescribed preparations imported from the United States, France and Switzerland will become exhausted fairly soon unless licences are granted for fresh importations. One of the tests used by the licensing authority when considering applications is whether similar articles can be produced in this country, and as we announced last week (p. 804) an addendum to the British Pharmacopœia is to be published dealing with foreign drugs that can be manufactured at home.

NEW PREPARATIONS

ASTEVAN is an aqueous solution of atropine methylnitrate, papaverine hydrochloride, sodium nitrate, pituitary extract (anterior and middle lobes), adrenaline, chlorbutol and glycerin, issued by Evans Sons Lescher & Webb Ltd. (London, E.C.1) which is intended for the inhalation treatment of asthma and hay-fever. It is presented in vials of ½ fl. oz. As contact with metal or exposure to light causes decomposition of this preparation it is necessary to use an atomiser made of amber alkali-free glass.

NARCONUMAL is a new intravenous anæsthetic introduced by Roche Products Ltd. (Welwyn Garden City). It is the sodium salt of methyl-5 : 5-allyl-isopropyl-barbituric acid. The makers claim that its toxicity factor is low and it can safely be used in prolonged anæsthesia for periods up to three hours. As it is not a sulphur-containing barbiturate it can be given to patients receiving sulphanilamide preparations. Narconumal is issued in ampoules containing 1 gramme of the dry substance to be dissolved in 10 c.cm. of sterile distilled water immediately before use.

CYCLONAL SODIUM.—Sodium N-methyl-C-C-cyclohexenylmethyl-malonylurea, which has been widely used as an intravenous anæsthetic under the name of Evipan Sodium during the past few years, is now being manufactured in this country by Pharmaceutical Specialities (May & Baker) Ltd., Dagenham, as Cyclonal Sodium.

NEGATOL.—Under this name Negatol Products Ltd. (40, St. Martin's-le-Grand, London, E.C.1) have introduced a metacresol sulphonated hydrocarbon with salicylic acid. It is a complex colloidal substance which has dehydrative and astringent and styptic properties. It is supplied in solution, in pessaries and as insufflation powder for use in cervicitis, non-specific vaginitis, trichomoniasis and post-gonorrhœal conditions.

BROMETHOL is the name adopted by the British Pharmacopœia Commission (*Lancet*, April 27, 1940, p. 804) for a solution of tribromoethyl alcohol in amylene hydrate which was formerly imported from Germany under the proprietary name of Avertin. British Drug Houses Ltd. are now issuing it as a British product—Bromethol (B.D.H.). It is presented for clinical use in bottles of 25 c.cm. and 100 c.cm.

Appointments

ARNOTT, G. M., M.B. Glasg., F.R.C.S.E., resident surgical officer at Birmingham Children's Hospital.

BISHOP, ISABELLA R., M.B. Edin., assistant medical officer at the maternity home, Ilford.

BRADY, JULIA, M.B. Durh., resident medical officer at Upney (Maternity) Hospital, Barking.

BULL, H. C. H., M.B. Camb., M.R.C.P., hon. radiologist to the East Ham Memorial Hospital.

DAVIES, H. H., M.R.C.S., temporary assistant medical officer of health for Newport, Mon.

GORE-GRIMES, MAUREEN, M.B. Dubl., resident medical officer at Leicester City General Hospital.

GRIST, G. S., M.A. Oxfd, L.M.S.S.A., temporary medical officer (A.R.P.) for Islington.

MACHUGH, MARY, M.R.C.S., temporary pathologist at the Brompton Hospital, London.

MCPHERSON, A. R., M.B. Edin., D.P.M., medical officer of health for Douglas, Isle of Man.

MITCHELL, CECILY C., L.R.C.P.E., resident medical officer at Leicester City General Hospital.

NEVIN, MARY E., M.D. Belf., D.C.H., D.P.H., assistant school medical officer for Enfield.

OWENS, W. E., M.B. Camb., D.A., anæsthetist to the Hôpital et Dispensaire Français, London.

ROPER, OLIVE N., M.B. Lond., temporary assistant school medical officer and assistant medical officer of health for Taunton.

SWINTON, C. F., M.D., Ch.M. St. And., F.R.C.S.E., medical superintendent at Mayday Hospital, Croydon.

TRUEMAN, R. S., M.B. Lond., F.R.C.S.E., resident surgical officer at the Coventry and Warwickshire Hospital.

Examining Surgeons under the Factories Act, 1937 : Dr. J. A. W. ROBERTON (Leek, Staffs); Dr. T. FARTHING (Swanscombe, Kent); Dr. R. H. TITCOMBE (New Mills, Derbyshire).

Medical Referee under the Workmen's Compensation Act, 1925 : Dr. W. N. CHALMERS, Kirkcudbright sheriff-court district (sheriffdom of Dumfries and Galloway).

Births, Marriages and Deaths

BIRTHS

CAUCHI.—On April 22, at Mayfield, Sussex, the wife of Dr. Joseph Cauchi, Nigeria—a son.

CHARLTON.—On April 23, at Ditchling, Sussex, the wife of Captain P. H. Charlton, R.A.M.C.—a son.

EASTON.—On April 26, the wife of Dr. J. L. H. Easton, of Tonbridge—a daughter.

O'DOHERTY.—On April 20, at Westminster Hospital, the wife of Dr. Colman O'Doherty—a son.

O'DONOVAN.—On April 22, in Dublin, the wife of Dr. Denis K. O'Donovan—a son.

MARRIAGES

BINTCLIFFE—LEWIS.—On April 27, at Doddridge Memorial Church, Northampton, Eric William Bintcliffe, M.S., to Beatrice Mary Lewis.

DIXON—ALLEN.—On April 25, at Kensington, Robert Halstead Dixon, M.B., of Ealing, to Marguerite Edith Allen, of Surbiton.

GAIRDNER—JAMES.—On April 24, in New York, Douglas Montagu Temple Gairdner, B.M., to Ann Helen James.

O'SULLIVAN—POWELL.—On April 25, in London, Bryan Michael O'Sullivan, M.B., Surgeon Lieutenant, R.N., to Patricia Powell.

WALLACE—Wilson.—On April 24, in London, David Mitchell Wallace, F.R.C.S., Flight-Lieutenant, R.A.F.V.R., to Elsie Noel Kate Wilson, M.B.

WATTS—STIELL.—On April 20, at Clapham, Ronald Williams Watts, Surgeon Lieutenant, R.N.V.R., to Ruth Barbara Stiell, of Clapham.

DEATHS

BARLING.—On April 27, at Edgbaston, Harry Gilbert Barling, Bart., C.B., M.B. Lond., F.R.C.S., aged 84.

HINTON.—On April 25, at Bristol, Hammond Tooke Hinton, M.B. Aberd., aged 73.

KINTON.—On April 22, at Brighton, Walter Gregory Kinton, M.B. Manc., aged 67.

LAVY.—On April 26, at Tunbridge Wells, Ernest Edward Lavy, M.B.E., M.D. Dubl., late Vicar of St. Andrew's, Watford, aged 62.